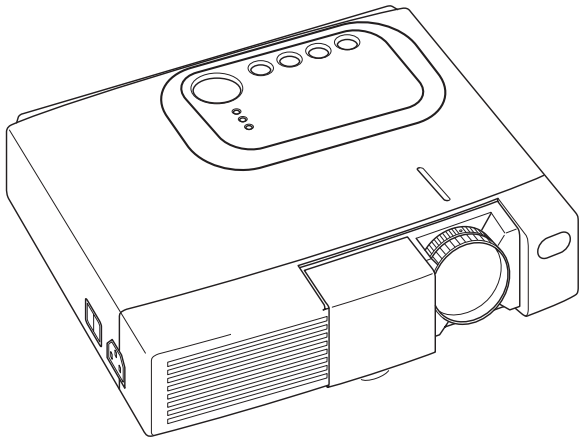
HITACHI

SERVICE MANUAL

SM0525

CPS225WA (C3S2A)
CPX275WA (C3X2A)
PJ501 (C3S3VS)
PJ551 (C3XM3VS)
PJ500-2 (C3S2A)
PJ550-2 (C3X2A)



Caution

Be sure to read this manual before servicing. To assure safety from fire, electric shock, injury, harmful radiation and materials, various measures are provided in this Hitachi Multimedia LCD Projector. Be sure to read cautionary items described in the manual to maintain safety before servicing.

Service Warning

1. When replacing the lamp, avoid burns to your fingers. The lamp becomes very hot.
2. Never touch the lamp bulb with a finger or anything else. Never drop it or give it a shock. They may cause bursting of the bulb.
3. This projector is provided with a high voltage circuit for the lamp. Do not touch the electric parts of power unit (main), when turn on the projector.
4. Do not touch the exhaust fan, during operation.
5. The LCD module assembly is likely to be damaged. If replacing to the LCD module assembly, do not hold the FPC of the LCD module assembly.
6. Use the cables which are included with the projector or specified.

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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

Multimedia LCD Projector

October 2002 Digital Media Division

1. Features

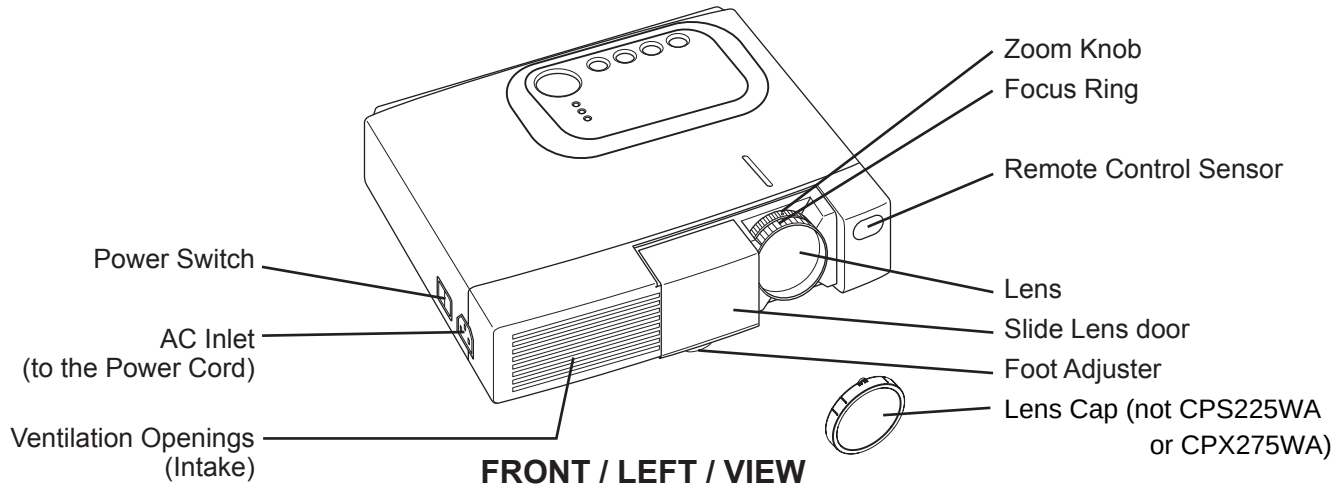
- 1,500 ANSI lumens, 2.7kg (6lbs) (PJ501, PJ551)
- 1,200lm, 2.49kg (5.49lbs) (CPS225WA, CPX275WA, PJ500-2, PJ550-2)
- Easy and flexible keystone adjustment
- Wide angle lens
- Low noise
- My Screen (PJ501, PJ551 only)

2. Specifications

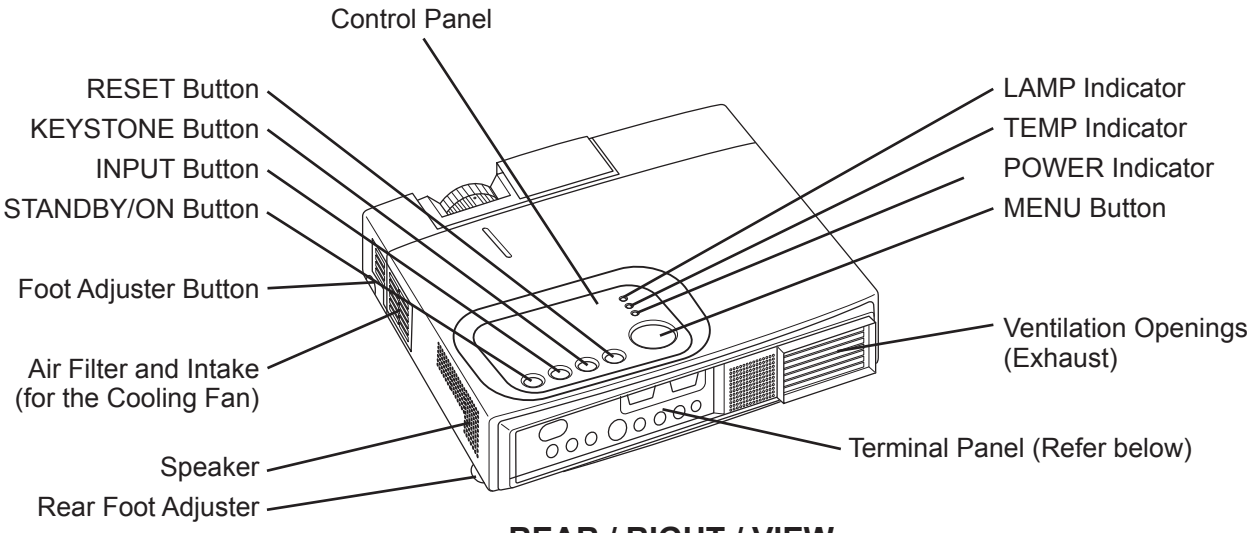
		CPS225WA / PJ500-2 / PJ501	CPX275WA / PJ550-2 / PJ551
Liquid crystal panel	Drive system	TFT active matrix	
	Panel size	0.7 inch	
	Number of pixels	800 (H) × 600 (V)	1024 (H) × 768 (V)
Lamp		150W UHB	
Video input	System	NTSC, PAL(BGDHI), SECAM, PAL-M, PAL-N, NTSC4.43, PAL60	
	Level	Composite 1.0±0.1Vp-p (75Ω termination)	
		S-video Y : 1.0±0.1Vp-p (75Ω termination) C : 0.286±0.1Vp-p (NTSC burst signal, 75Ω termination) 0.3±0.1Vp-p (PAL/SECAM burst signal, 75Ω termination)	
		Component Y : 1.0±0.1Vp-p (75Ω termination) C_B/C_R : 0.7±0.1Vp-p (75Ω termination) P_B/P_R : 0.7±0.1Vp-p (75Ω termination)	
RGB input	Analog RGB	0.7Vp-p (75Ω termination)	
	Sync.	TTL level	
Audio	Input	200mVrms, 47kΩ	
	Output	200mVrms, output impedance 1kΩ	
Speaker output		1.0W (mono)	
Power supply		AC100~120V/2.7A, AC220~240V/1.3A	
Power consumption		240W	
Dimensions		289 (W) × 83 (H) × 210 (D) mm	
Weight		2.49kg (5.49lbs.)	
Temperature range		Operation : 0~35°C Storage : -20~60°C	
Accessories		Remote control transmitter × 1 RGB cable × 1 Video/Audio cable × 1 POWER cord × 3	Battery × 2 Carrying bag × 1 User's manual × 3

3. Names of each part

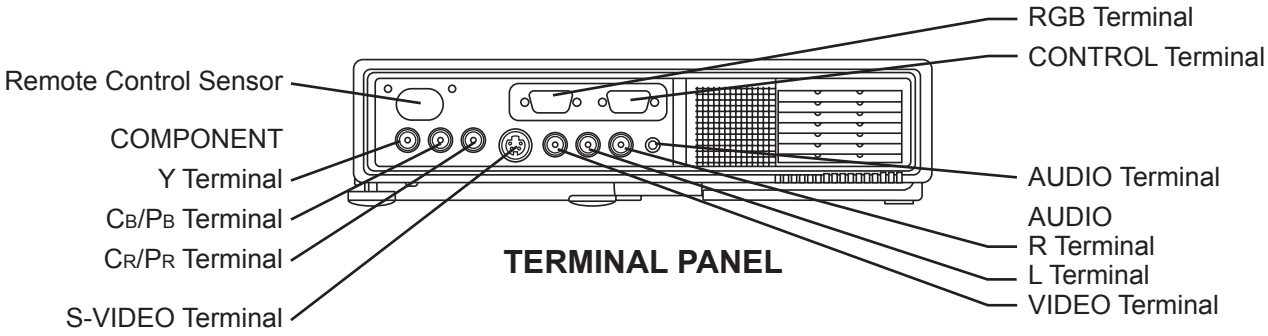
● Parts names



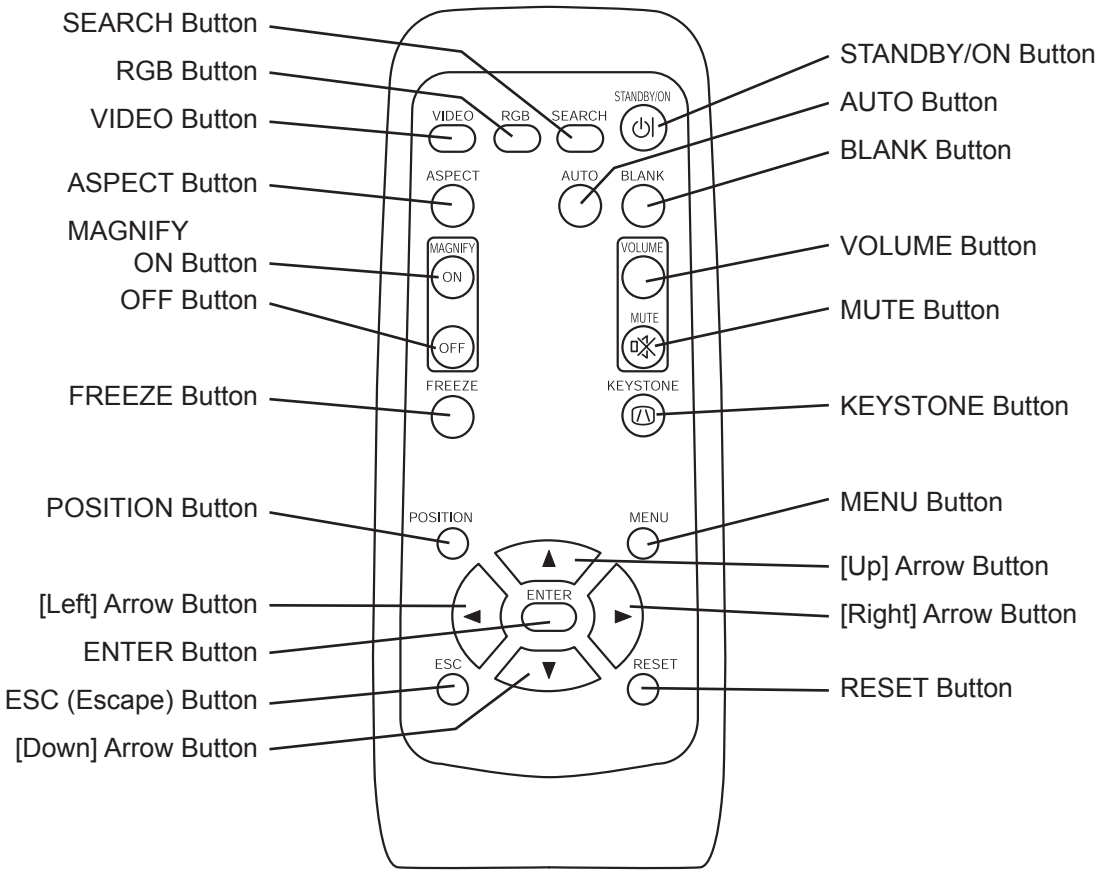
FRONT / LEFT / VIEW



REAR / RIGHT / VIEW



TERMINAL PANEL



Remote control transmitter

4. Adjustment

4-1 Before adjusting

4-1-1 Selection of adjustment

When any parts in the table 4-1 are changed, choose the proffer adjusting items with the chart.

Table 4-1: Relation between the replaced part and adjustment

Replaced part	Adjustment				
	Ghost (Chap.4-2)	Flicker (Chap.4-3)	PSIG/NRSH (Chap.4-4)	White balance (Chap.4-5)	Color uniformity (Chap.4-6)
Dichroic optics unit	○	○	×	△	△
LCD/LENS prism assembly	○	○	○	○	○
PWB assembly drive	○	○	○	○	○
Lamp unit assembly	△	△	×	△	△

○: means need for adjustment. ×: means not need for adjustment.

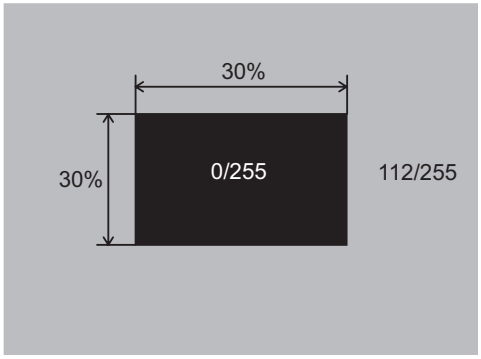
△: means recommended.

4-1-2 Setting of condition before adjustment

1. Before starting adjustment, warm up the projector for about 10 minutes.(Blank white)
2. Set Zoom Wide to Max. And project an image with more than 40 inches in diagonal size.
3. Normalizing the video adjustment.
   (Press the [MENU] button of the Remote control transmitter to display the MAIN menu, and then press the [RESET] button. And select the [DEFAULT]. Next, open MAIN menu and press the [▼] key to display the PICTURE1 menu, then press the [RESET] key to set to [DEFAULT].)
   *note :The MAIN and PICTURE1 menu is not reset with no signal.
4. Set the normal at OPT-WHISPER in the menu.
5. Reset KEYSTONE correction.
6. Perform all adjustments from the Adjustment menu.
   Perform the following operations to display the Adjustment menu.
   a. Press the [MENU] button of the Remote control transmitter (the Setup menu will appear).
   b. Next, press the [RESET] button one time. And press the [RESET] button again for 5 seconds or more (the Adjustment menu will appear).

4-2 Ghost adjustment

Signals for internal adjustment

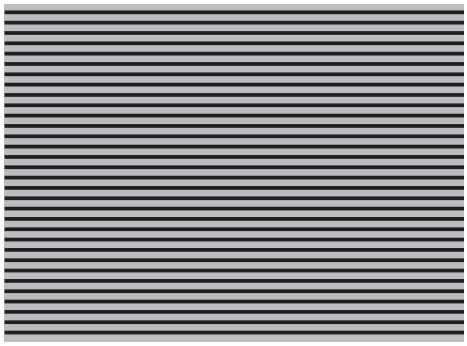


Adjustment procedure

1. Use DAC-P - GHOST - R: in the Adjustment menu to adjust so that R color ghost is at a minimum.
   (Set the adjustment value to default, and then raise the value. When a ghost appears to the left of a vertical line, reduce the value by 2 steps.)
2. In the same way, use DAC-P - GHOST-G: in the Adjustment menu to adjust so that G color ghost is at a minimum.
3. In the same way, use DAC-P - GHOST-B: in the Adjustment menu to adjust so that B color ghost is at a minimum.

4-3 Flicker adjustment (V.COM adjustment)

Signals for internal adjustment



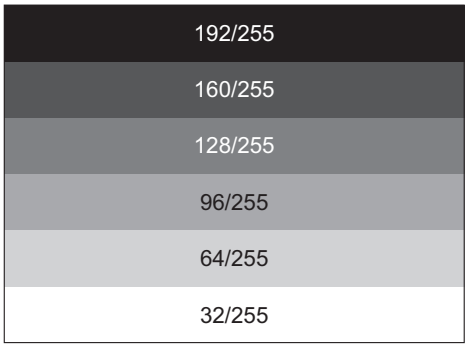
Adjustment procedure

1. Make this adjustment after completing the adjustment in 4-2 Ghost adjustment.
2. Use DAC-P - V.COM - R: in the Adjustment menu to adjust so that the flicker at the center of the screen is less than the flicker at the periphery.
   (When the flicker is about the same across the whole screen, adjust so that the flicker at the center of the screen is somewhat less than elsewhere.)
3. In the same way, use DAC-P - V.COM-G: in the Adjustment menu to adjust the G color flicker.
4. In the same way, use DAC-P - V.COM-B: in the Adjustment menu to adjust the B color flicker.

CPS225WA, PJ500-2, PJ501 ONLY

4-4 PSIG-G adjustment (vertical stripe adjustment)

Signals for internal adjustment

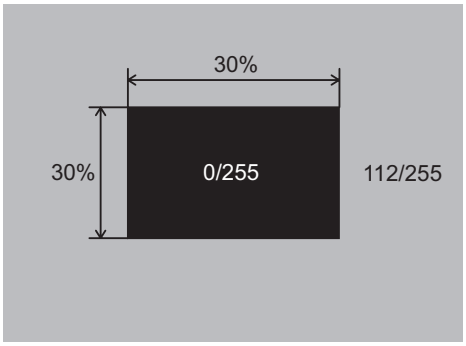


Adjustment procedure

1. Make this adjustment after completing the adjustment in 4-3 Flicker adjustment.
2. Use DAC-P - PSIG - G: in the Adjustment menu to adjust so that the vertical lines spaced every 6 or 12 dots are as inconspicuous as possible.

4-4-1 PSIG-B adjustment (vertical streaks adjustment)

Signals for internal adjustment



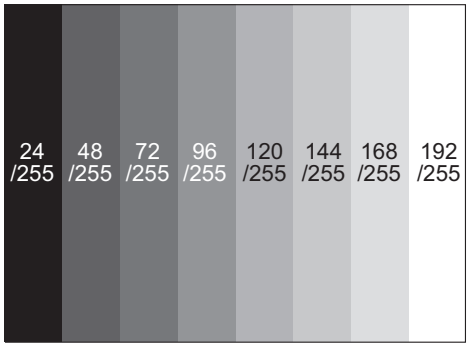
Adjustment procedure

1. Make this adjustment after completing the adjustment in 4-3 Flicker adjustment.
2. Use DAC-P - PSIG - B: in the Adjustment menu to adjust so that the vertical streaks on the upper of window pattern.

CPX275WA, PJ550-2, PJ551 ONLY

4-4 NRSH adjustment (vertical stripe adjustment)

Signals for internal adjustment



Adjustment procedure

1. Make this adjustment after completing the adjustment in 4-3 Flicker adjustment.
2. Use DAC-P - NRSH - R: in the Adjustment menu to adjust so that the vertical lines spaced every 6 dots are as inconspicuous as possible.
   (Reduce the adjustment value when black stripes appear in the 2nd or 3rd tone from the black side. Note that when the adjustment value is lowered, white stripes may appear in the 2nd or 3rd tone from the bright side. Should this happen, adjust so that the stripes are as inconspicuous as possible.)
3. In the same way, use DAC-P - NRSH - G: in the Adjustment menu to adjust vertical stripes of G color.
4. In the same way, use DAC-P - NRSH - B: in the Adjustment menu to adjust vertical stripes of B color.

4-5 White balance adjustment (visual inspection)

Preparations

1. Perform these adjustments after the PSIG adjustment described in Section 4-4.
2. Reset gamma correction before adjustment.
   - Place the cursor on [GAMMA] in the Adjustment menu, press the [RESET] key and select [DEFAULT].

Adjustment procedure

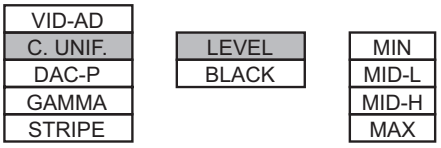
1. First, adjust the G color.
2. Select GAMMA, SUB-CONTRAST, and G: in the Adjust menu. If the background is white solid, press the [MENU SELECT] key on the Remote control transmitter to change to [G] monochrome in the 28-tone grayscale.
3. Adjust GAMMA, SUB-CONTRAST, and G: in the Adjust menu so that brightness of 28 steps is best.
4. Don't adjust GAMMA, SUB-BRIGHT, and G: in the Adjust menu. Because we want to keep the best contrast ratio.
5. Then adjust colors R and B.
6. Select GAMMA, SUB-CONTRAST, and G: in the Adjust menu. If the background is white solid, press the [MENU SELECT] key on the Remote control trasmitter to change to [W] monochrome in the 28-tone grayscale.
7. Adjust GAMMA, SUB-BRIGHT, R: and B: in the Adjust menu so that low-brigtness white balance is best.
8. Adjust GAMMA, SUB-CONTRAST, R: and B: in the Adjust menu so that middle-brightness white balance is best.
9. Repeat steps 7 to 8 above, and adjust so that brightness white balance of 28 steps is best.

4-6 Color uniformity adjustment

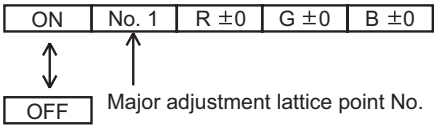
Preparations

1. Perform these adjustments after the white balance adjustment described in Section 4-5.
2. Make a color uniformity adjustment for the following four tones.
   - MIN tone (approx. 4% input signal)
   - MID-L tone (approx. 14% input signal)
   - MID-H tone (approx. 25% input signal)
   - MAX tone (approx. 57% input signal)
3. Place the cursor on the tone to be adjusted in the Adjust menu and press the [▼] key. This displays the Adjust Tone menu at the bottom of the screen. Select the major adjustment lattice point No. and color, and then adjust them.
4. The major adjustment lattice point numbers (a total of 17 points) corresponds to the major adjustment lattice point positions in the diagram on the right. The color uniformity of the entire screen can be adjusted by adjusting the white balance for each of the points starting in order from the low numbers.
5. Adjustment point No.1 should not be adjusted, because it controls the brightness of the entire screen.
6. To temporarily turn correction off, place the cursor on “ON” in the Adjust Tone menu and press the [▼] key. To turn it on again, place the cursor on OFF in the Adjust Tone menu and press the [▲] key.
7. Although this adjustment can also be made using internal signals, we will here use the [MENU SELECT] key on the Remote control transmitter to select the following two signals.
   - Solid monochrome adjustment color (use G color adjustment when a color differential meter is used).
   - Solid white (use for adjustment other than above).
8. Reset color-shading correction before adjustment.
   - When 4 tones and all colors are to be reset, place the cursor on [C.UNIF.] in the Adjustment menu, press the [RESET] key and select [DEFAULT].
   - When only 1 tone is to be reset, place the cursor on the tone to be reset, press the [RESET] key and select [DEFAULT].
   - Single tone and monochrome resets cannot be performed.

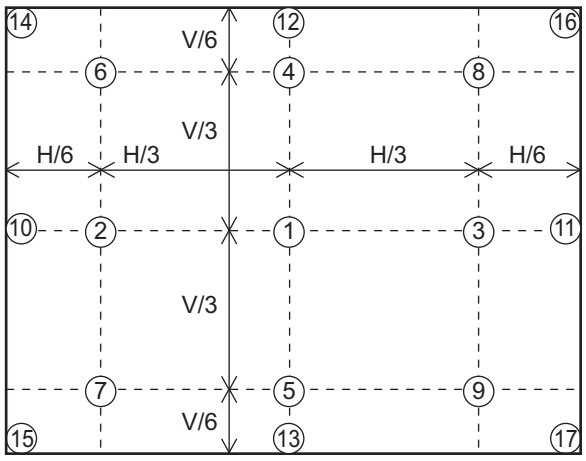
Adjust menu



Adjust Tone menu



Major adjustment lattice point position



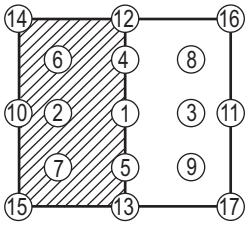
Adjustment procedure 1
(when a color differential meter is used)

1. First adjust [MID-L] tone [G:].
2. Select adjustment point [No.2][G:].
   When the background is not [G] monochrome, press the [MENU SELECT] key on the Remote control transmitter to change to solid [G] monochrome.
3. Measure the illumination at adjustment points No. 2, No.3, No.10 and No.11.
   The values should be:
   No.2 = Y2 [lx] No.10 = Y10 [lx]
   No.3 = Y3 [lx] No.11 = Y11 [lx]
4. No.2 and No.3 adjustment point have the average of Y2 and Y3.
   Y2 = (Y2 + Y3) / 2 ± 2 [%]
   Y3 = (Y2 + Y3) / 2 ± 2 [%]
5. No.10 and No.11 adjustment point have the average of Y10 and Y11.
   Y10 = (Y10 + Y11) / 2 ± 2 [%]
   Y11 = (Y10 + Y11) / 2 ± 2 [%]
6. Then adjust [MID-L] tone [R] and [B].
   When the background is [G] monochrome, press the [MENU SELECT] key on the Remote control transmitter to change to solid white.
7. Measure the color coordinates of adjustment point [No.1] and make a note of them.
   Assume that they are x = x1, y = y1.
   Note: When the CL-100 color and color difference meter is used, the [△](delta) mode is convenient. When adjustment point [No.1] color coordinate has been selected, set the slide switch on the side to [△](delta) while holding down the [F] button on the front panel. The measurement shown after this displays the deviation from measurement point 1.
8. Measure the color coordinates of measurement point [No.2] and adjust [No.2][R:] and [B:] so that the coordinates are as follows.
   x = x1 ± 0.005 , y = y1 ± 0.010
9. Similarly, measure adjustment points [No.3] to [No.17] and adjust their color coordinates starting in order from the small number points.
   This completes adjustments required for [MIN].
   Note: Since excessive correction may lead to a correction data overview during internal calculations, use the following values for reference.
   [No.2] to [No.5] ± 40 or less
   [No.6] to [No.9] ± 50 or less
   [No.10] to [No.13] ± 70 or less
   [No.14] to [No.17] ± 120 or less
10. Then adjust [MIN] tone [G] so that the adjustment data set two times as much as [MID-L] tone [G].
    This completes [G] color adjustments.
11. Then adjust [MIN] tone [R] and [B].
    Select [No.2] [B:] and press the [MENU SELECT] key on the Remote control transmitter to change to solid white.
12. Measure the color coordinates of adjustment point [No.1] and make a note of them.
    Assume that they are x = x1, y = y1.
13. Now measure the color coordinates of measurement point [No.2] and adjust [No.2][R:] and [B:] so that the coordinates are as follows.
    x = x1 ± 0.005 , y = y1 ± 0.010 (Target)
    x = x1 ± 0.020 , y = y1 ± 0.040
14. Similarly, measure adjustment points [No.3] to [No.17] and adjust their color coordinates starting in order from the small number points.
    This completes [MIN] tone adjustments.
15. Now make similar adjustments for [MID-H] tone.
    (Adjust [MID-H] tone [G] so that the adjustment data set half as many as [MID-L] tone [G].)
16. Now make similar adjustments for [MAX] tone.
    (Adjust [MAX] tone [G] so that the adjustment data set half as many as [MID-L] tone [G].)

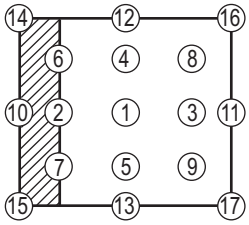
Adjustment procedure 2
(visual inspection)

1. First adjust [MIN] tone [G:].
2. Select [No.2] [G:].
   If the background is [G] monochrome, press the [MENU SELECT] key on the Remote control transmitter to change to solid white.
3. View measurement point [No.2] and [No.3].
   Lower the [G] color intensity only of the color point whose [G] color is more intense than measurement point [No.1].
4. View measurement point [No.10] and [No.11].
   Lower the [G] color intensity only of the color point whose [G] color is more intense than measurement point [No.1], and raise the intensity of the point whose color intensity is lower than measurement point [No.1].
5. Now adjust the [MIN] tone for colors [R] and [B].
6. View measurement points [No.2], [No.3], [No.10] and [No.11]. Adjust the [R] and [B] of each measurement point so that they have the same color as measurement point [No.1].
   Adjustment technique:
   First, adjust [B:] of the point whose color is to be adjusted so that it approximates that of [No.1]. If [R:] is low at this time, the image will have cyan cast, in which case [R:] is increased. On the other hand, if [R:] is excessive, the image will have a magenta cast, in which case [R:] is decreased.
   Overall, a cyan cast makes it easy to see color shading.
7. Next, view measurement points [No.4], [No.5], [No.12], [No.13] and make similar adjustments.
8. Then adjust measurement points [No.6], [No.7], [No.8], [No.9], [No.14], [No.15], [No.16] and [No.17].
   This completes the [MIN] tone adjustments.
9. Make similar another three tones as described in steps 1 to 8 above.

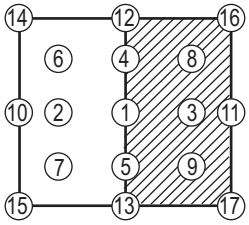
No. 2 deviation range



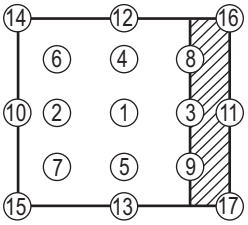
No. 10 deviation range



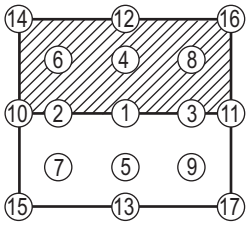
No. 3 deviation range



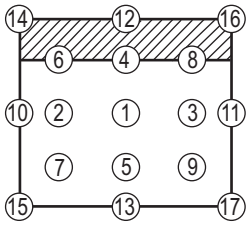
No. 11 deviation range



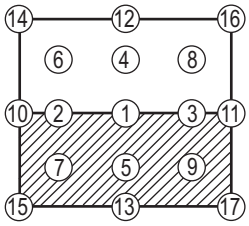
No. 4 deviation range



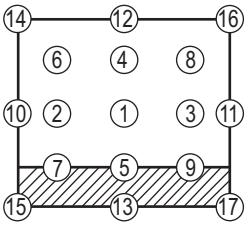
No. 12 deviation range



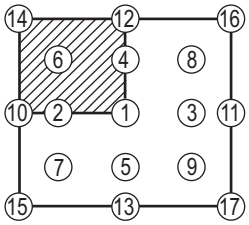
No. 5 deviation range



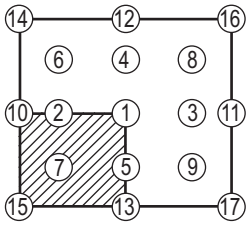
No. 13 deviation range



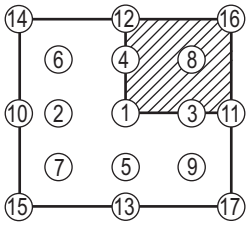
No. 6 deviation range



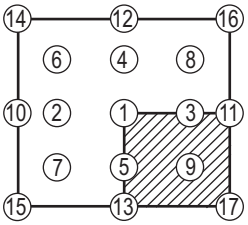
No. 7 deviation range



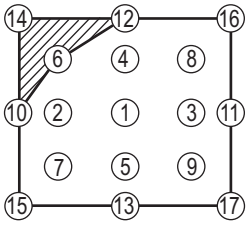
No. 8 deviation range



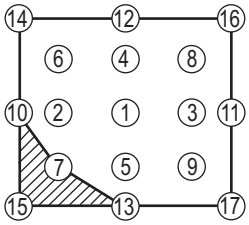
No. 9 deviation range



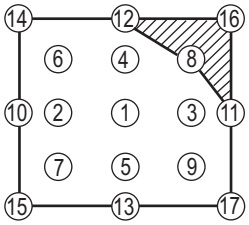
No. 14 deviation range



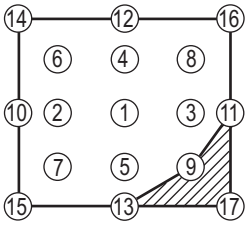
No. 15 deviation range



No. 16 deviation range

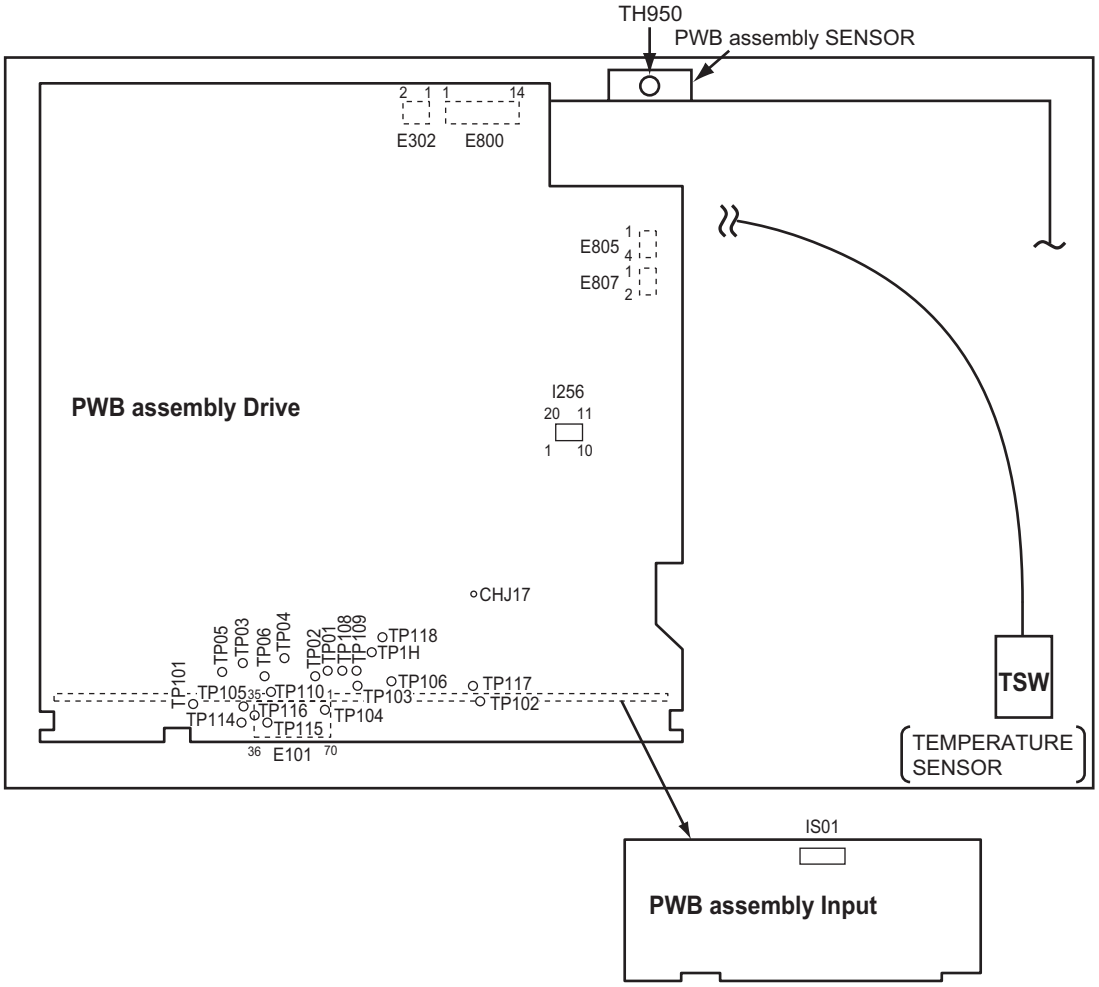


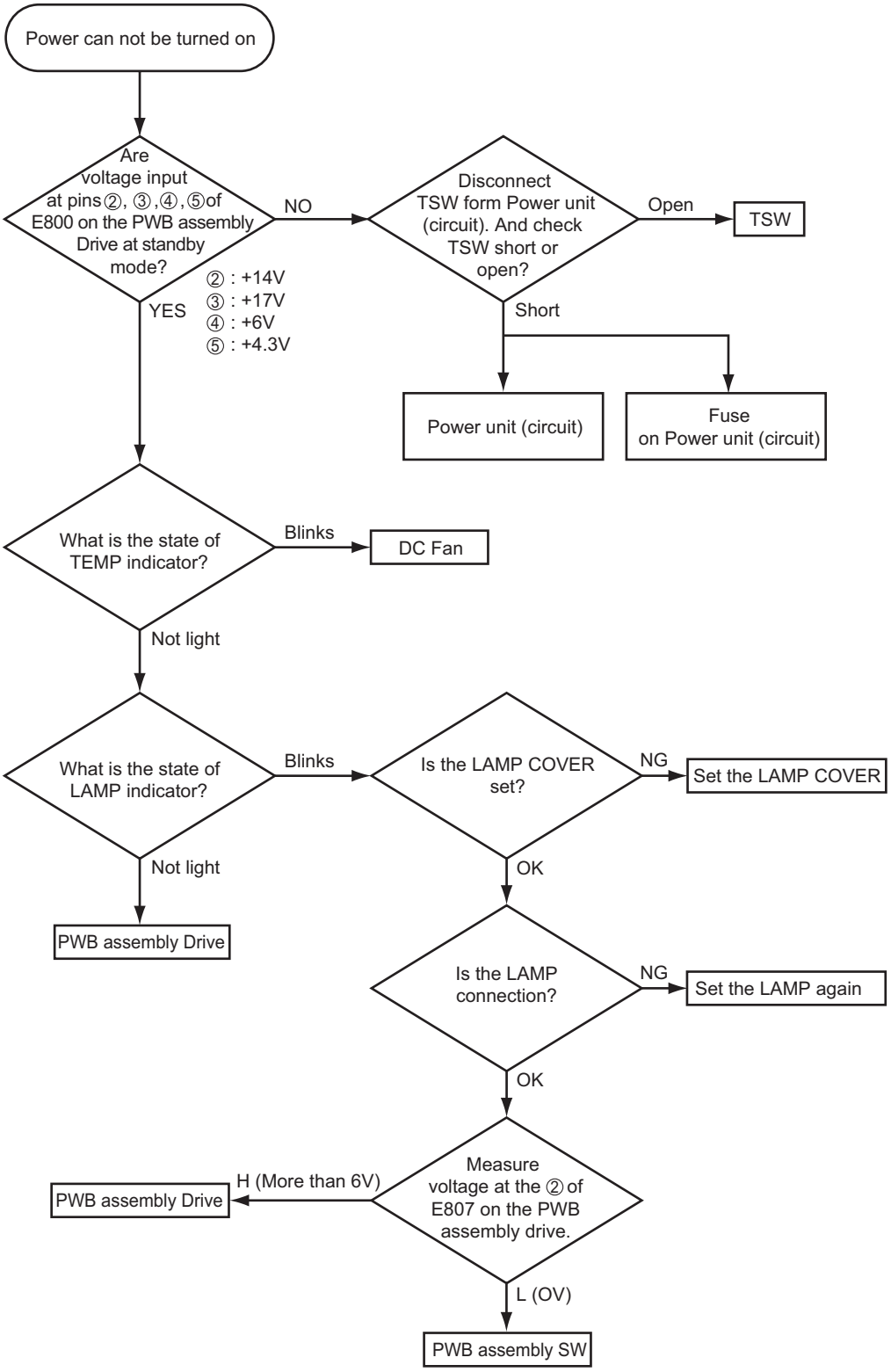
No. 17 deviation range

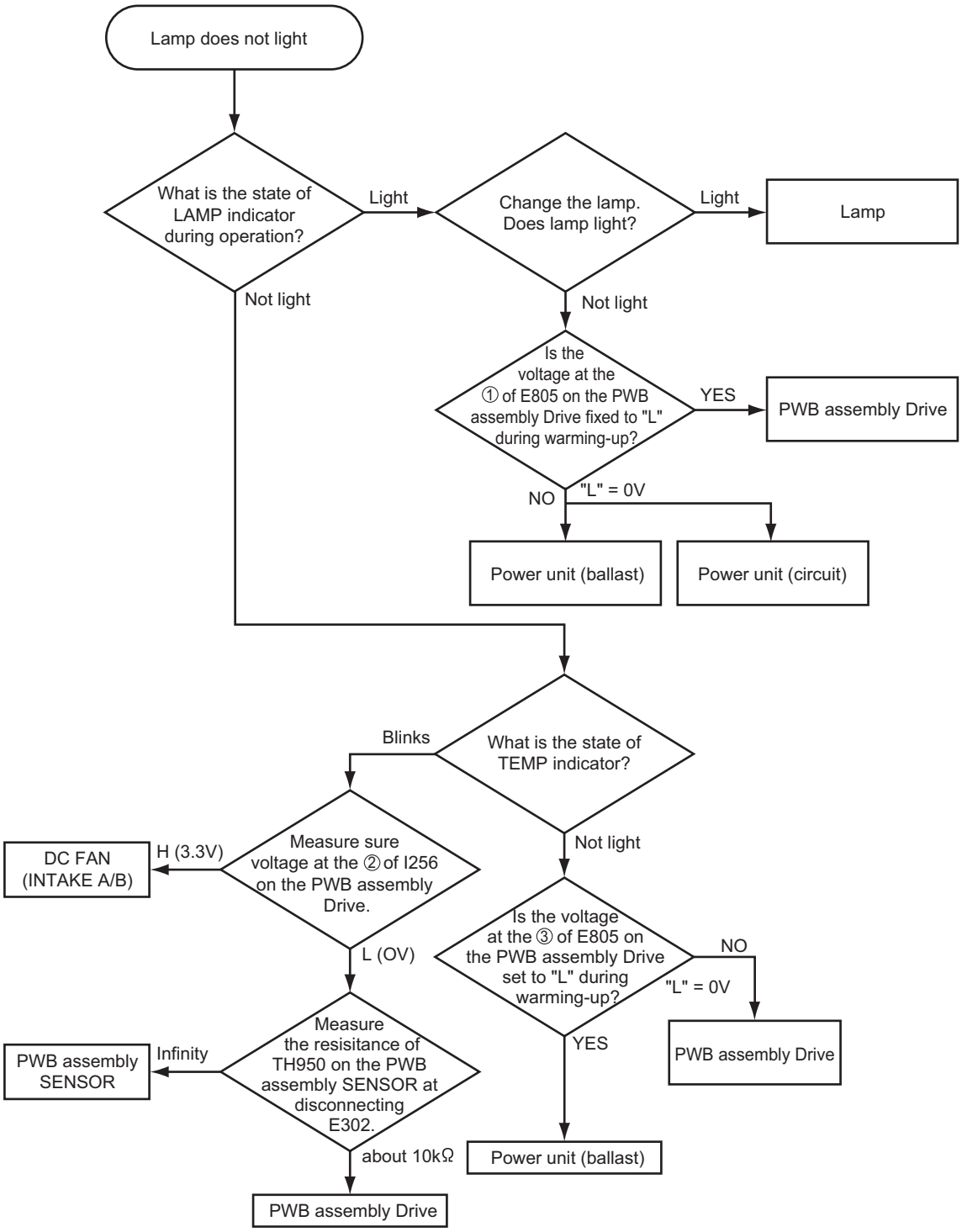


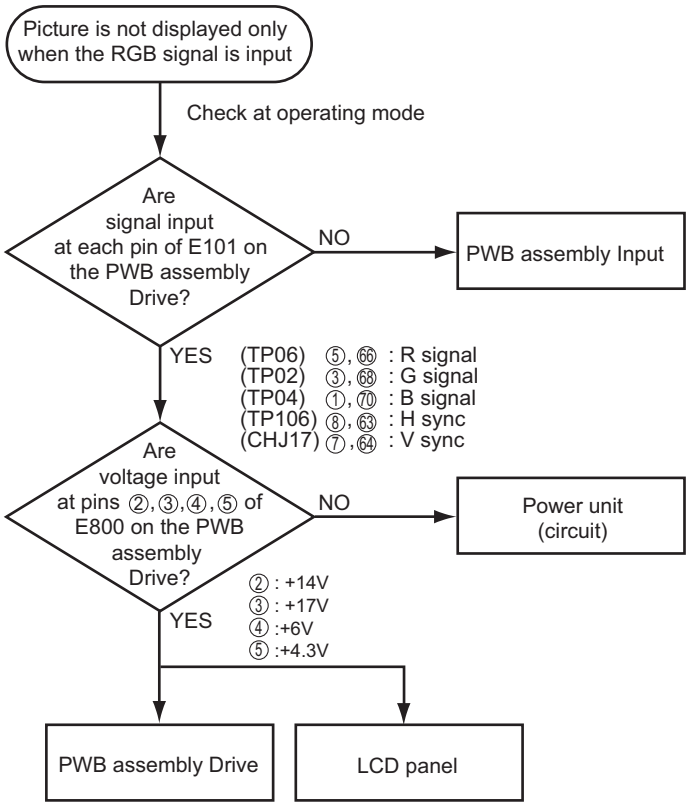
5. Troubleshooting

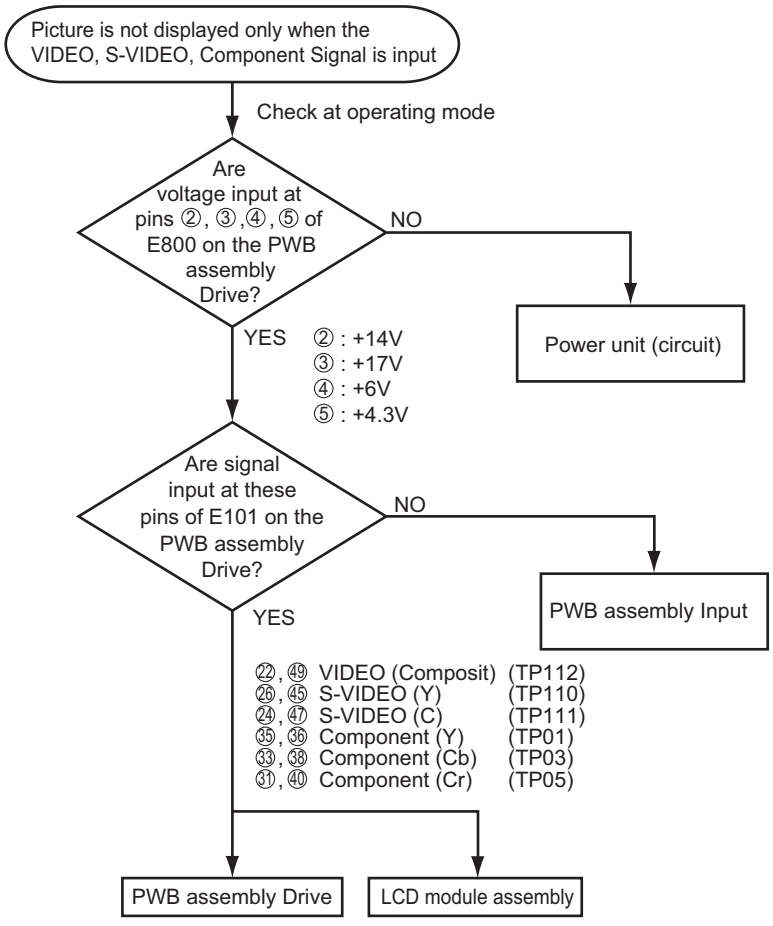
Check points at trouble shooting

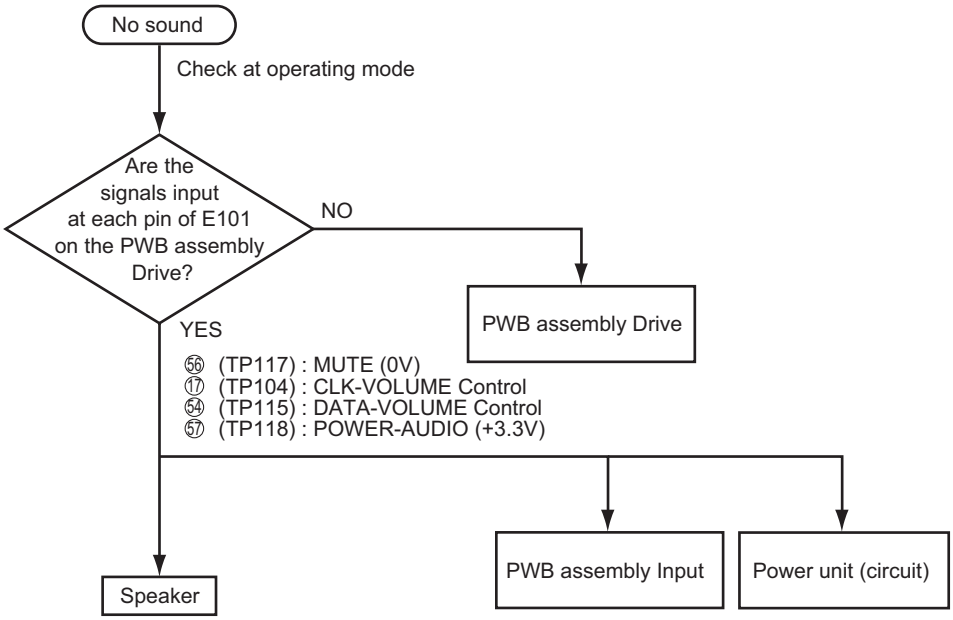


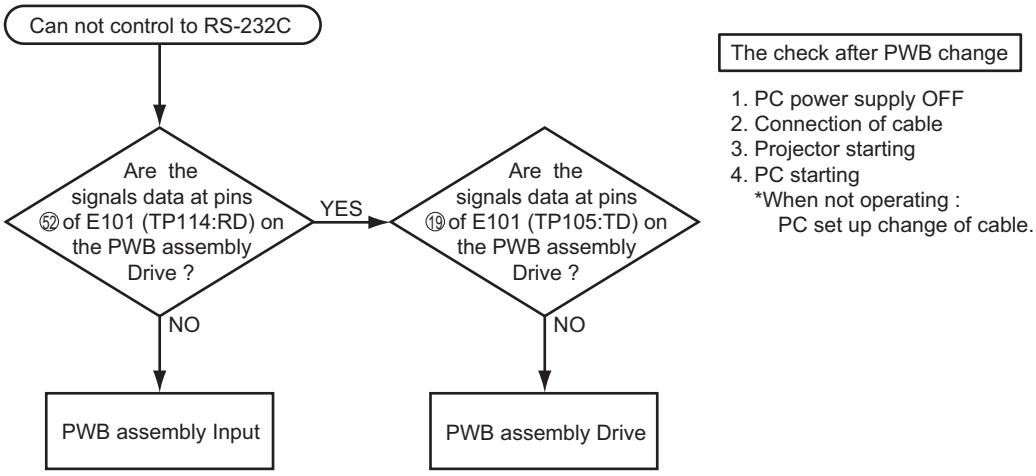

Power can not be turned on
Are voltage input at pins②, ③,④,⑤of E800 on the PWB assembly Drive at standby mode?
NO
Disconnect TSW form Power unit (circuit). And check TSW short or open?
Open
TSW
② : +14V
③ : +17V
④ : +6V
⑤ : +4.3V
YES
Short
Power unit (circuit)
Fuse on Power unit (circuit)
What is the state of TEMP indicator?
Blinks
DC Fan
Not light
What is the state of LAMP indicator?
Blinks
Is the LAMP COVER set?
NG
Set the LAMP COVER
Not light
OK
PWB assembly Drive
Is the LAMP connection?
NG
Set the LAMP again
OK
Measure voltage at the ② of E807 on the PWB assembly drive.
H (More than 6V)
PWB assembly Drive
L (OV)
PWB assembly SW


Lamp does not light
What is the state of LAMP indicator during operation?
Light
Change the lamp. Does lamp light?
Light
Lamp
Not light
Not light
Is the voltage at the ① of E805 on the PWB assembly Drive fixed to "L" during warming-up?
YES
PWB assembly Drive
NO
"L" = 0V
Power unit (ballast)
Power unit (circuit)
Blinks
What is the state of TEMP indicator?
Not light
Measure sure voltage at the ② of I256 on the PWB assembly Drive.
H (3.3V)
DC FAN (INTAKE A/B)
L (OV)
Is the voltage at the ③ of E805 on the PWB assembly Drive set to "L" during warming-up?
NO
"L" = 0V
PWB assembly Drive
YES
Measure the resisitance of TH950 on the PWB assembly SENSOR at disconnecting E302.
Infinity
PWB assembly SENSOR
about 10kΩ
PWB assembly Drive
Power unit (ballast)


Picture is not displayed only when the RGB signal is input
Check at operating mode
Are signal input at each pin of E101 on the PWB assembly Drive?
NO
PWB assembly Input
YES
(TP06) ⑤, ⑯ : R signal
(TP02) ③, ⑱ : G signal
(TP04) ①, ⑳ : B signal
(TP106) ⑧, ⑬ : H sync
(CHJ17) ⑦, ⑭ : V sync
Are voltage input at pins ②,③,④,⑤ of E800 on the PWB assembly Drive?
NO
Power unit (circuit)
YES
② : +14V
③ : +17V
④ :+6V
⑤ :+4.3V
PWB assembly Drive
LCD panel


Picture is not displayed only when the VIDEO, S-VIDEO, Component Signal is input
Check at operating mode
Are voltage input at pins ②, ③,④, ⑤ of E800 on the PWB assembly Drive?
NO
Power unit (circuit)
YES
② : +14V
③ : +17V
④ : +6V
⑤ : +4.3V
Are signal input at these pins of E101 on the PWB assembly Drive?
NO
PWB assembly Input
YES
㉒, ㊾ VIDEO (Composit) (TP112)
㉖, ㊺ S-VIDEO (Y) (TP110)
㉔, ㊼ S-VIDEO (C) (TP111)
㉟, ㊱ Component (Y) (TP01)
㉝, ㊳ Component (Cb) (TP03)
㉛, ㊵ Component (Cr) (TP05)
PWB assembly Drive
LCD module assembly


No sound
Check at operating mode
Are the signals input at each pin of E101 on the PWB assembly Drive?
NO
PWB assembly Drive
YES
㊻ (TP117) : MUTE (0V)
⑰ (TP104) : CLK-VOLUME Control
㊹ (TP115) : DATA-VOLUME Control
㊼ (TP118) : POWER-AUDIO (+3.3V)
Speaker
PWB assembly Input
Power unit (circuit)

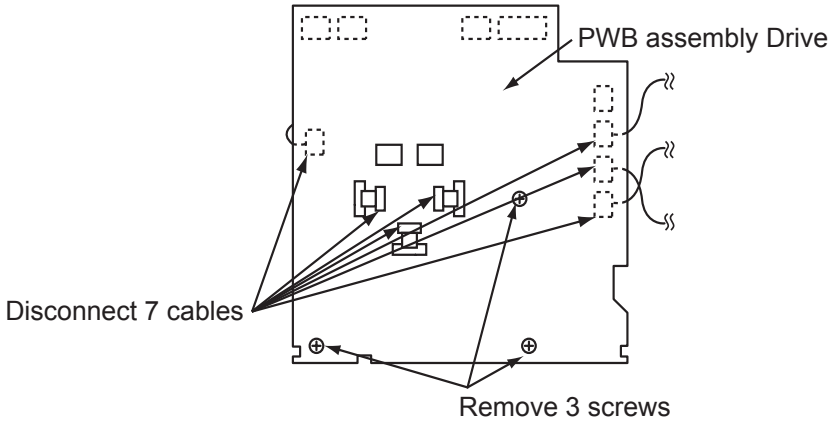

Can not control to RS-232C
Are the signals data at pins ㊷ of E101 (TP114:RD) on the PWB assembly Drive ?
YES
Are the signals data at pins ⑲ of E101 (TP105:TD) on the PWB assembly Drive ?
NO
NO
PWB assembly Input
PWB assembly Drive
The check after PWB change
1. PC power supply OFF
2. Connection of cable
3. Projector starting
4. PC starting
*When not operating :
PC set up change of cable.

6. Service Points

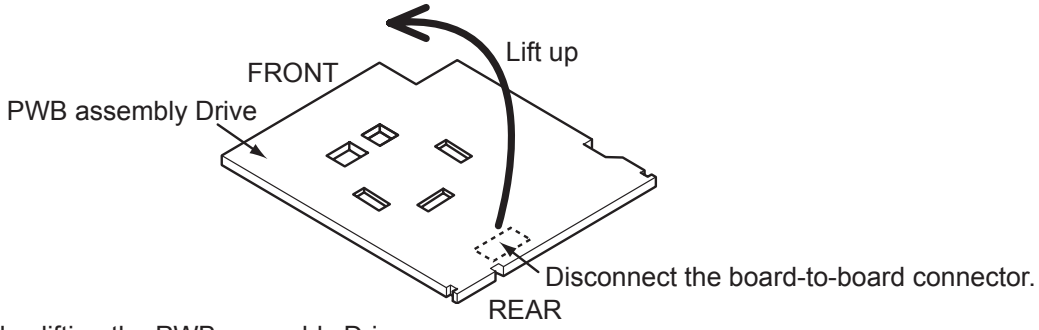
● Cautions when removing the PWB assembly Drive

When removing the PWB assembly Drive, there is danger of damaging the connector connecting cables and the PWB assembly Signal.

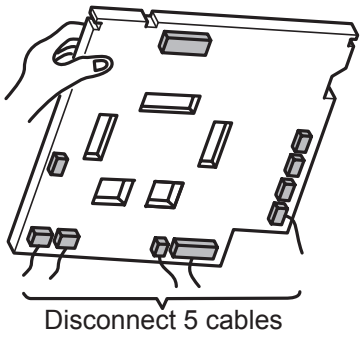
1) Disconnect 7 cables and remove 3 screws.



2) Lift up the rearward of the PWB assembly Drive to the front.

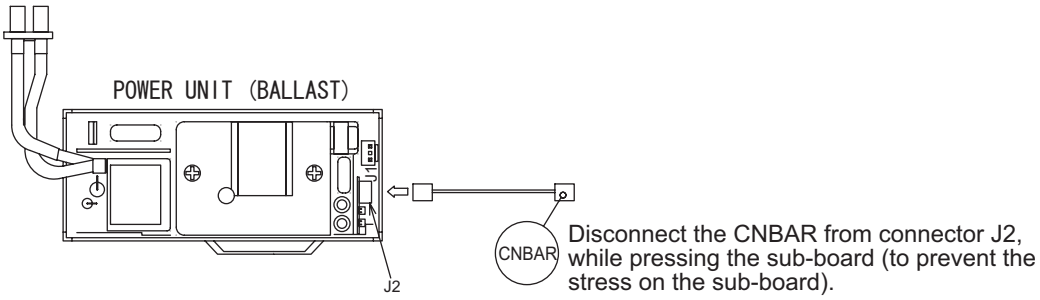


3) Disconnect 5 cables lifting the PWB assembly Drive.



● Cautions when removing the POWER UNIT (BALLAST)

When removing the cable (CNBAR) connected to POWER UNIT (BALLAST) there is danger of damaging the small PWB connecting cables.



● Lead free solder [CAUTION]

This product uses lead free solder (unleaded) to help preserve the environment. Please read these instructions before attempting any soldering work.

Caution: Always wear safety glasses to prevent fumes or molten solder from getting into the eyes. Lead free solder can splatter at high temperatures (600˚C).

■ Lead free solder indicator

Printed circuit boards using lead free solder are engraved with an "F."

■ Properties of lead free solder

The melting point of lead free solder is 40-50˚C higher than leaded solder.

■ Servicing solder

Solder with an alloy composition of Sn-3.0Ag-0.5Cu or Sn-0.7Cu is recommended.
Although servicing with leaded solder is possible, there are a few precautions that have to be taken. (Not taking these precautions may cause the solder to not harden properly, and lead to consequent malfunctions.)

Precautions when using leaded solder

- Remove all lead free solder from soldered joints when replacing components.
- If leaded solder should be added to existing lead free joints, mix in the leaded solder thoroughly after the lead free solder has been completely melted (do not apply the soldering iron without solder).

■ Servicing soldering iron

A soldering iron with a temperature setting capability (temperature control function) is recommended.
The melting point of lead free solder is higher than leaded solder. Use a soldering iron that maintains a high stable temperature (large heat capacity), and that allows temperature adjustment according to the part being serviced, to avoid poor servicing performance.

Recommended soldering iron:

- Soldering iron with temperature control function (temperature range: 320-450˚C)

Recommended temperature range per part:

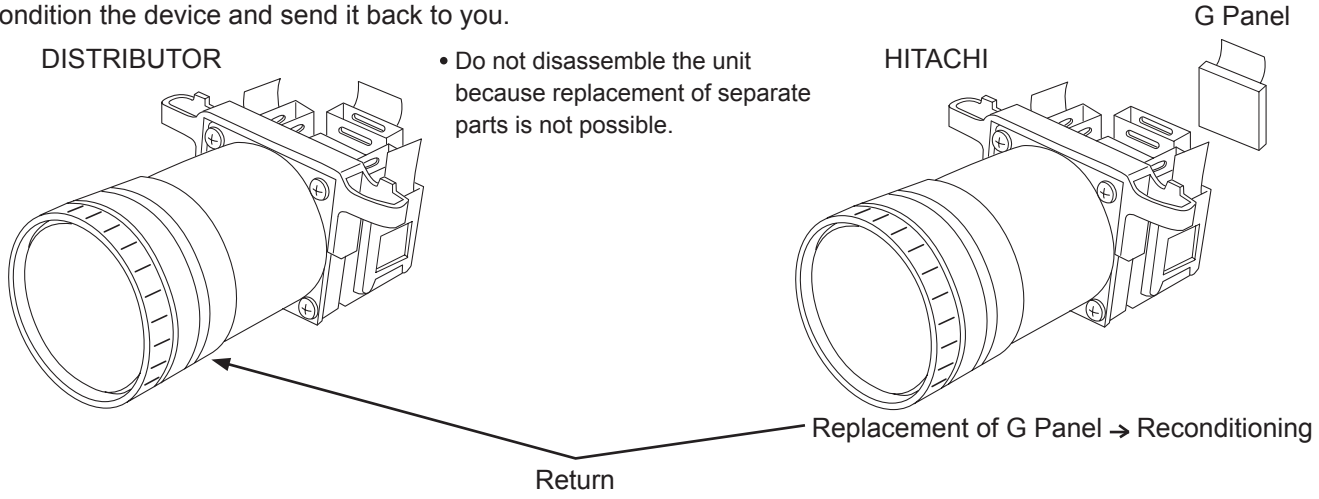
Part	Soldering iron temperature
Mounting (chips) on mounted PCB	320˚C±30˚C
Mounting (chips) on empty PCB	380˚C±30˚C
Chassis, metallic shield, etc.	420˚C±30˚C

The PWB assembly which has used lead free solder

① PWB assembly DRIVE

● Before Replacing the LCD / Lens Prism

You should not replace separately the parts of the liquid crystal LCD / Lens Prism because it works properly only when used together. Therefore, regarding these parts, you can either replace part , LCD / Lens Prism assembly, or send the whole unit LCD / Lens Prism assembly back to HITACHI, where we will replace the malfunctioning part, recondition the device and send it back to you.



● Using the Remote control

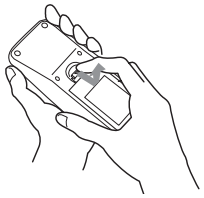
⚠ **CAUTION** Precautions to observe in regards to the batteries

Always handle the batteries with care and use them only as directed. Improper use may result in battery cracking or leakage, which could result in fire, injury and/or pollution of the surrounding environment.

- Keep the battery away from children and pets.
- Be sure to use only the batteries specified for use with the remote control. Do not mix new batteries with used ones.
- When inserting batteries, verify that the plus and minus terminals are aligned correctly (as indicated in the remote control).
- When you dispose the battery, you should obey the law in the relative area or country.

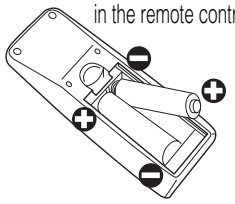
1 Remove the battery cover

Slide back and remove the battery cover in the direction of the arrow.



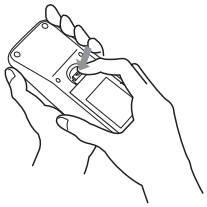
2 Insert the batteries

Align and insert the two AA batteries (that came with the projector) according to their plus and minus terminals (as indicated in the remote control).



3 Close the battery cover

Replace the battery cover in the direction of the arrow and snap it back into place.



● Air Filter

Cleaning the Air Filter

The air filter should be cleaned as described below at intervals of approximately 100 hours. When the filter is used for approximately 100 hours, the message "CLEAN THE AIR FILTER" appears when the projector is switched on.

1. Switch the projector power supply OFF, and remove the power cord from the power outlet.
2. Clean the air filter with a vacuum cleaner.
3. Reset the Filter Timer using the function of the FILTER TIME on the OPTION Menu. Please refer to the description of the "FILTER TIME" on the : OPTION Menu.
   (Select RESET on the menu with the ▲ button.)

Replacing the Air Filter

Replace the air filter if contamination cannot be removed, or if it is damaged.

1. Switch the projector power OFF, and remove the power cord from the power outlet.
2. Remove the filter cover and the filter.
3. Replace the new air-filter and the filter cover.
4. Reset the Filter Timer using the function of the FILTER TIME on the OPTION Menu. Refer to the description of the "FILTER TIME" on the : OPTION Menu.
   (Select RESET on the menu with the ▲ button.)

CAUTION

- Switch POWER OFF and remove the power cord from the power outlet before beginning maintenance work.
- Replace the air filter if contamination cannot be removed, or if it is damaged.
- Do not use the projector with the air filter removed.
- When the air filter is clogged, the power supply is switched OFF automatically to prevent overheating.

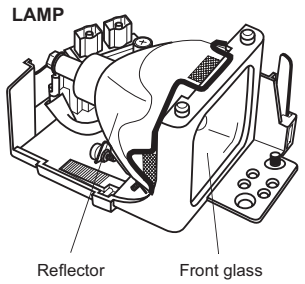
● Lamp (Option Lamp: DT00401(CPS225WA) / DT00461(CPX275WA))

HIGH VOLTAGE
HIGH TEMPERATURE
HIGH PRESSURE

Before replacing the lamp, check the serial number of the replacement lamp bulb (sold separately: DT00401(CP-S225WA) / DT00461(CP-X275WA)), then contact your local dealer. Before replacing the lamp, turn off the power, and unplug the power cord, then wait at least 45 minutes, in order to ensure that the lamp is properly cooled. Removing the lamp bulb while it is still hot could cause burns, or cause the lamp bulb to burst.

⚠**WARNING** The LCD projector uses a glass lamp bulb. It is a mercury lamp with high internal pressure. High-pressure mercury lamps can break with a loud bang, or burn out, if jolted or scratched, or through wear over time. Each lamp has a different lifetime, and some may burst or burn out soon after you start using them. In addition, when the bulb bursts, it is possible for shards of glass to fly into the lamp housing, and for gas containing mercury to escape from the projector's vent holes.

- Handle with care: jolting or scratching could cause the lamp bulb to burst during use.
- If the replace lamp indicator (see "Related Messages" and "Regarding the indicator Lamps") comes on, replace the lamp as soon as possible. Using the lamp for long periods of time, or past the replacement date, could cause it to burst. Do not use old (used) lamps; this is a cause of breakage.
- If the lamp breaks soon after the first time it is used, it is possible that there are electrical problems elsewhere besides the lamp. If this happens, contact your local dealer.
- If the lamp should break (it will make a loud bang when it does), ventilate the room well, and make sure not to breathe the gas that comes out of the projector vents, or get it in your eyes or mouth.
- If the lamp should break (it will make a loud bang when it does), unplug the power cord from the outlet, and make sure to request a replacement lamp from your local dealer. Note that shards of glass could damage the projector's internals, or cause injury during handling, so please do not try to clean the projector or replace the lamp yourself.
- Obey local ordinances when disposing of used lamps. In most cases, it is possible to dispose of used bulbs in the same manner as used glass bottles, but in some cases, bulbs are sorted separately.
- Do not use the projector with the lamp cover removed.



Lamp life

Projector lamps have a finite life. The image will become darker and hues will become weaker after a lamp has been used for a long period of time.

Replace the lamp if the LAMP indicator is red or the "CHANGE THE LAMP" message appears when the projector is switched on. See "Related Messages" on page 26 and "Indicator Messages" on page 27.

NOTE: The LAMP indicator is also red when the lamp unit reaches high temperature. Before replacing the lamp switch the POWER OFF, wait approximately 20 minutes, and switch the POWER ON again. If the LAMP indicator is still red replace the lamp.

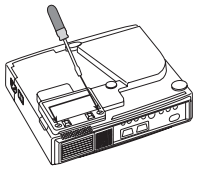
● Replacing the Lamp

All projector lamps will wear out eventually. If used for long periods of time, the image could become darkened, and the color contrast could be impacted as well. We recommend that you replace your lamps early. If the LAMP indicator turns red, or a message prompts you to replace the lamp when you power up the projector, the lamp needs to be replaced. (See "Related Messages" and "Regarding the Indicator Lamps" for details.)

1 **Turn off the projector, and unplug the power cord. Allow the lamp bulb to cool for at least 45 minutes, and prepare a new lamp (sold separately: DT00401 for CP-S225WA/DT00461 for CP-X275WA)**

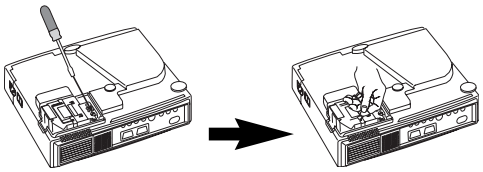
2 **After making sure that the projector has cooled adequately, slowly flip over the projector, so that the bottom is facing up**

3 **Unscrew the 2 screws, and remove the lamp cover**



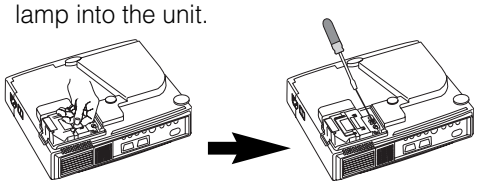
4 **Unscrew the 1 screw, and slowly pull out the lamp by the handle**

- Be careful not to touch the inside of the lamp case.

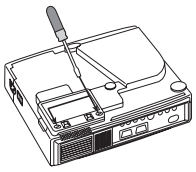


5 **Insert the new lamp, and tighten the 1 screw firmly to lock it in place**

- Also steadily push the opposite side of the screwed side of the lamp into the unit.



6 **Replace the lamp cover, and tighten the 2 screws firmly to lock it in place**



7 **Slowly turn the projector so that the top is facing up**

8 **Turn on the projector power, and using the menu, reset the lamp timer**

- To reset the lamp timer, from the OPTION menu, select LAMP TIME.

ATTENTION • Make sure that the screws are screwed in firmly. Loose screws could result in damage or injury.

- Do not use with lamp cover removed.
- Do not reset the lamp timer without replacing the lamp. Reset the lamp timer always when replacing the lamp. The message functions will not operate properly if the lamp timer is not reset correctly.
- When the lamp has been replaced after the message of "CHANGE THE LAMP ...THE POWER WILL TURN OFF AFTER 0 hr." is displayed, or the LAMP indicator is red, complete the following operation within 10 minutes of switching power ON.

NOTE • The LAMP indicator is also red when the lamp unit reaches high temperature. Before replacing the lamp, switch power OFF, wait approximately 20 minutes, and switch power ON again. If the LAMP indicator is still red, replace the lamp.

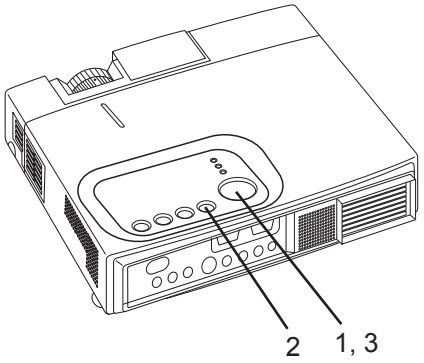
● Resetting the Lamp Timer

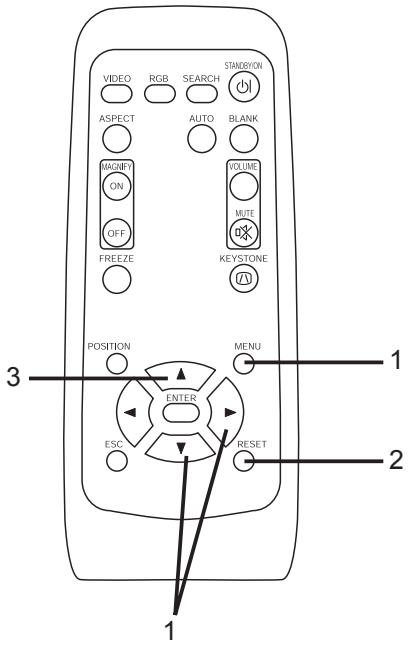
Reset the lamp timer after replacing the lamp. When the lamp has been replaced after the LAMP indicator is red, or the CHANGE THE LAMP message is displayed, complete the following operation within 10 minutes of switching power ON. The power will be turned off automatically in over 10 minutes.

1. Switch power ON, and select the LAMP TIME on the OPTION menu.
2. Depress the RESET button for at least 3 seconds while lamp time is being displayed.
   The reset menu will then appear.
3. Select RESET on the menu with the ▲ button, and wait until the timer display is cleared.

IMPORTANT:

Do not reset the lamp timer without replacing the lamp. Reset the lamp timer always when replacing the lamp. The message functions will not operate properly if the lamp timer is not reset correctly.





● Notice of AUTO adjustment

Use of AUTO adjustment with the image through RGB input optimizes VPOSI, HPOSI, HSIZE and HPHASE automatically.

In case that projected image has dark tone around its peripheral, AUTO operation sometimes makes artifacts in the image, shifts capture area and so on. Those failures are caused by period of image data is not exactly distinguished to period of blanking on signal processing.

To avoid such phenomena, AUTO function should be used with the full size picture that has bright tone on its peripheral.

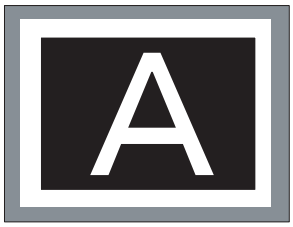


Image when AUTO operates correctly

Image when AUTO fails.

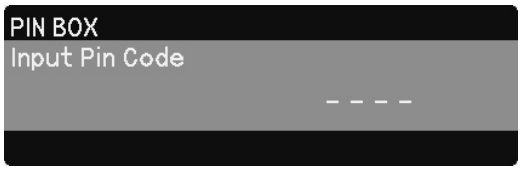
- Noting image of top or bottom lines.
- Shift of the image to East or West.
- Artifacts on image. Etc.

Note

1) The phenomenon at the failure of AUTO adjustment depends on resolution of input source, scene of picture etc.
2) There is no failure above in AUTO with video source through VIDEO, S-VIDEO or COMPONENT input. The reason is why recognition of input signal's standard does not need to search the capture range from input signal itself.

● PIN LOCK System

If the following PIN BOX menu appears after power on the projector, the PIN LOCK system has been activated. Under such a condition, key operations and signal displaying are inhibited. To open the PIN LOCK system, we need to input the correct 4 digits PIN CODE. If correct PIN CODE is not input in 5 min., the lamp will be automatically turned off.



PIN BOX

Returning repaired unit

Use the Master PIN code. See the paragraph of Releasing the PIN LOCK system inactivation.

Swap unit/Returned unit

Inactivate the PIN LOCK system. See the paragraph of the PIN LOCK system inactivation.

Releasing the PIN LOCK System

When the PIN BOX menu is displayed, sequentially enter the codes with remote controller as follows. In accordance with remote controller button entry, "∗" mark appears in the PIN BOX menu.

Master PIN codes

1st entry code: Press the "MENU" button.
2nd entry code: Press the "▼" button.
3rd entry code: Press the "KEYSTONE" button.
4th entry code: Press the "▲" button.

Note: The Master PIN codes can be used up to 30 times. The codes cannot be used thereafter. If the Master PIN codes cannot be used, see the paragraph of the PIN LOCK system inactivation.

The PIN LOCK System inactivation

1. When the PIN BOX menu is displayed, press "RESET" for 3 seconds or more in order to get the ID Inquiring Code.

PIN BOX (ID Inquiring Code)

2. Send HITACHI sales company the Inquiring code (10 digits) to inquire the correct PIN code.
3. With the PIN BOX menu displayed, input the correct PIN code. Enter the correct PIN CODE that HITACHI sales company informed.
4. Open menu and select "TURN OFF" from the PIN LOCK items in the OPTION menu. Then the PIN BOX menu appears.
5. Input the correct PIN code in the PIN BOX menu.
6. And then, the OPTION menu appears.

After the PIN LOCK system is inactivated, the PIN BOX is no longer displayed in the OPTION menu.
If the PIN LOCK items are kept displaying, the PIN LOCK system is not inactivated yet. Input the correct PIN CODE again.

● Related Messages

When the unit's power is ON, messages such as those shown below may be displayed. When any such message is displayed on the screen, please respond as described below.

Message	Description
CHANGE THE LAMP **AFTER REPLACING LAMP, RESET THE LAMP TIMER.** (Note 1)	Lamp usage time is approaching 2,000 hours. (Note 2) Preparation of a new lamp, and an early lamp change, is recommended. After you have changed the lamp, please be sure to reset the lamp timer.
CHANGE THE LAMP **AFTER REPLACING LAMP, RESET THE LAMP TIMER.** **THE POWER WILL TURN OFF AFTER ＊＊ hr.** (Note 1)	Lamp usage time is approaching 2,000 hours. A lamp change within ＊＊ hours is recommended. (Note 2) When lamp usage reaches 2,000 hours, the power will automatically be turned OFF. Please change the lamp by referring to “THE LAMP” in Vol.1 (Basic). After you have changed the lamp, please be sure to reset the lamp timer.
CHANGE THE LAMP **AFTER REPLACING LAMP, RESET THE LAMP TIMER.** **THE POWER WILL TURN OFF AFTER 0 hr.**	As lamp use has reached 2,000 hours, the power will soon be automatically turned OFF. (Note 2) Please immediately turn the power OFF, and follow the instructions in the “THE LAMP” section of the separate booklet, Vol.1 (Basic). After you have changed the lamp, please be sure to reset the lamp timer.
CLEAN THE AIR FILTER **AFTER CLEANING AIR FILTER, RESET THE FILTER TIMER.**	A note of precaution when cleaning the air filter. After cleaning the filter, operate FILTER TIME of the OPTION Menu, and perform reset of the filter timer.
NO INPUT IS DETECTED **ON ＊＊＊**	There is no input signal. Please confirm the signal input connection, and the status of the signal source.
SYNC IS OUT OF RANGE ON ＊＊＊ fH ＊＊＊＊＊kHz fV ＊＊＊＊＊Hz	The horizontal or vertical wavelength of the inputted signal is outside of the response parameters of this unit. Please confirm the specs for this unit or the signal source specs.
CHECK THE AIR FLOW	The internal portion temperature is rising. Please turn the power OFF, and allow the unit to cool down for approximately 20 minutes. After having confirmed the following items, then please resent the power to ON. • Is there blockage of the air passage aperture? • Is the air filter dirty? • Does the peripheral temperature exceed 35°C?

NOTES

Note 1: Although this message will be automatically disappeared after around 3 minutes, it will be reappeared every time the power is turned ON.

Note 2: Lamps have a finite product life. Lamps are characterized by the fact that, after long hours of usage, a lamp will no longer light up, or the lamp will break or burst, etc. This unit is equipped with an automatic shut-down function, such that the power will automatically be turned OFF when lamp usage time has reached 2,000 hours. Please be aware, however, that among lamp types, there are major differences in product lifetimes; a lamp may thus fail to light even prior to the functioning of the automatic shut-down function of this unit.

● Indicator Messages

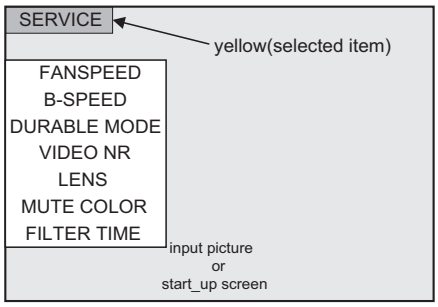
Lighting and flashing of the POWER indicator, the LAMP indicator, and the TEMP indicator have the meanings as described in the Table below.
Please respond in accordance with the instructions within the Table.

POWER indicator	LAMP indicator	TEMP indicator	Description
The orange lamp is lighted	Turned OFF (Not lighted)	Turned OFF (Not lighted)	The STANDBY mode is set
Flashing of the green lamp	Turned OFF	Turned OFF	The unit is warming up. Please wait.
The green lamp is lighted	Turned OFF	Turned OFF	The unit is in an ON state. Ordinary operations may be performed.
Flashing of the orange lamp	Turned OFF	Turned OFF	The unit is cooling down. Please wait.
Blink of the red lamp	-	-	The unit is cooling down. Please wait. A certain error has been detected. Wait until the POWER indicator lamp has finished flashing, and then perform the proper response measure using the item descriptions below as reference.
The red lamp is lighted, or blink	The red lamp is lighted	Turned OFF	The lamp does not light. There is a possibility that the interior portion has become heated. Turn the power OFF and wait approximately 20 minutes. After the main unit has cooled down, please confirm whether or not there is blockage of the air passage aperture, whether or not the filter is dirty, and/or whether or not the peripheral temperature exceeds 35°C, etc. After performing any needed maintenance, turn the power ON again; if the same display is displayed, then please change the lamp.
The red lamp is lighted, or blink	Blink of the red lamp	Turned OFF	Either there is no lamp and/or lamp cover, or either of these has not been properly fixed (attached). Turn the power OFF and wait approximately 45 minutes. After the main unit has sufficiently cooled down, please make confirmation of the attachment state of the lamp and lamp cover. After performing any needed maintenance, turn the power ON again.
The red lamp is lighted, or blink	Turned OFF	Blink of the red lamp	The cooling fan is not operating. Turn the power OFF and wait approximately 20 minutes. After the main unit has cooled down, please make confirmation that no foreign matter has become caught in the fan, etc. After performing any needed maintenance, turn the power ON again.
The red lamp is lighted, or blink	Turned OFF	The red lamp is lighted	There is a possibility that the interior portion has become heated. Turn the power OFF and wait approximately 20 minutes. After the main unit has cooled down, please confirm whether or not there is blockage of the air passage aperture, whether or not the filter is dirty, and/or whether or not the peripheral temperature exceeds 35°C, etc. After performing any needed maintenance, turn the power ON again.
The green lamp is lighted	Alternative blink with the red lamp		There is a possibility that the interior portion has become overcooled. Please use the unit within the usage temperature parameters (0°C to 35°C). Check the connector CNTH connecting. After performing any needed maintenance, turn the power ON again.
The green lamp is lighted	Simultaneous blink with the red lamp		This is a notification that it is time to clean the filter. After cleaning the filter, operate the FILTER TIME portion of the OPTION Menu, and perform reset of the FILTER TIME.

NOTE

When the interior portion has become overheated, for safety purposes, the power source is automatically turned OFF, and the indicator lamps may also be turned OFF. Press the "◯" (power OFF) side of the main power switch, and wait for approximately 20 minutes. Please then use the unit only after having first confirmed that the unit has sufficiently cooled down.

SERVICE MENU



To display the OSD for “SERVICE MENU” set up.

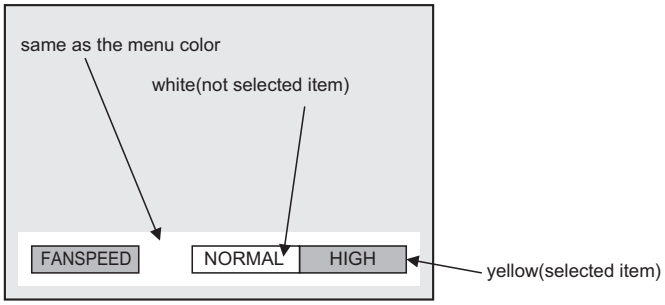
By the control panel	By the remote control transmitter
1. Display the menu by the “MENU” button. 2. Select the “OPT.” on the menu. 3. Continue press the button “◀” first, then press the button “◀” together with “RESET”, and hold for 3 seconds.	1. Display the menu by the “MENU” button. 2. Select the “OPT.” on the menu. 3. Continue pressing the button “MAGNIFY OFF” for 3 seconds.

● Setup of a Cooling Fan Speed

When using this projector in the place where altitude is high, we recommend you to set a cooling fan’s speed as “HIGH”. It is because the cooling efficiency of a projector falls and the temperature inside a projector rises easily in such a place, since the density of air becomes low.

Setting Method of Cooling Fan Speed

1. Select the “FAN SPEED” on the OSD using button “▼” by the SERVICE MENU.



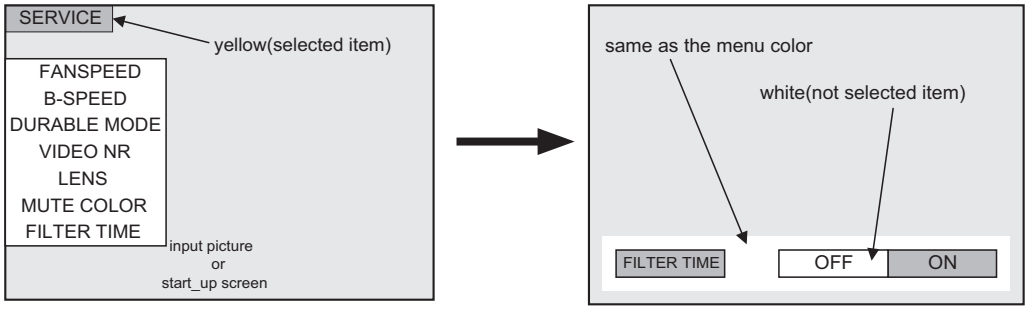
2. Select the “HIGH” on the OSD using the button “▶”. To reset this setup, select the “NORMAL” using the button “◀”.
3. The OSD will be ended by no operation for 10 seconds or change of input signal. To end immediately, use one of buttons except buttons “▲”, “▼”, “◀”, “▶”.

NOTE:

- The “HIGH” mode makes the fan noisy than “NORMAL” mode.
- The recall of factory setting sets the fan speed to “NORMAL” mode. You must set the fan speed after recall of factory setting if you need “HIGH” mode.

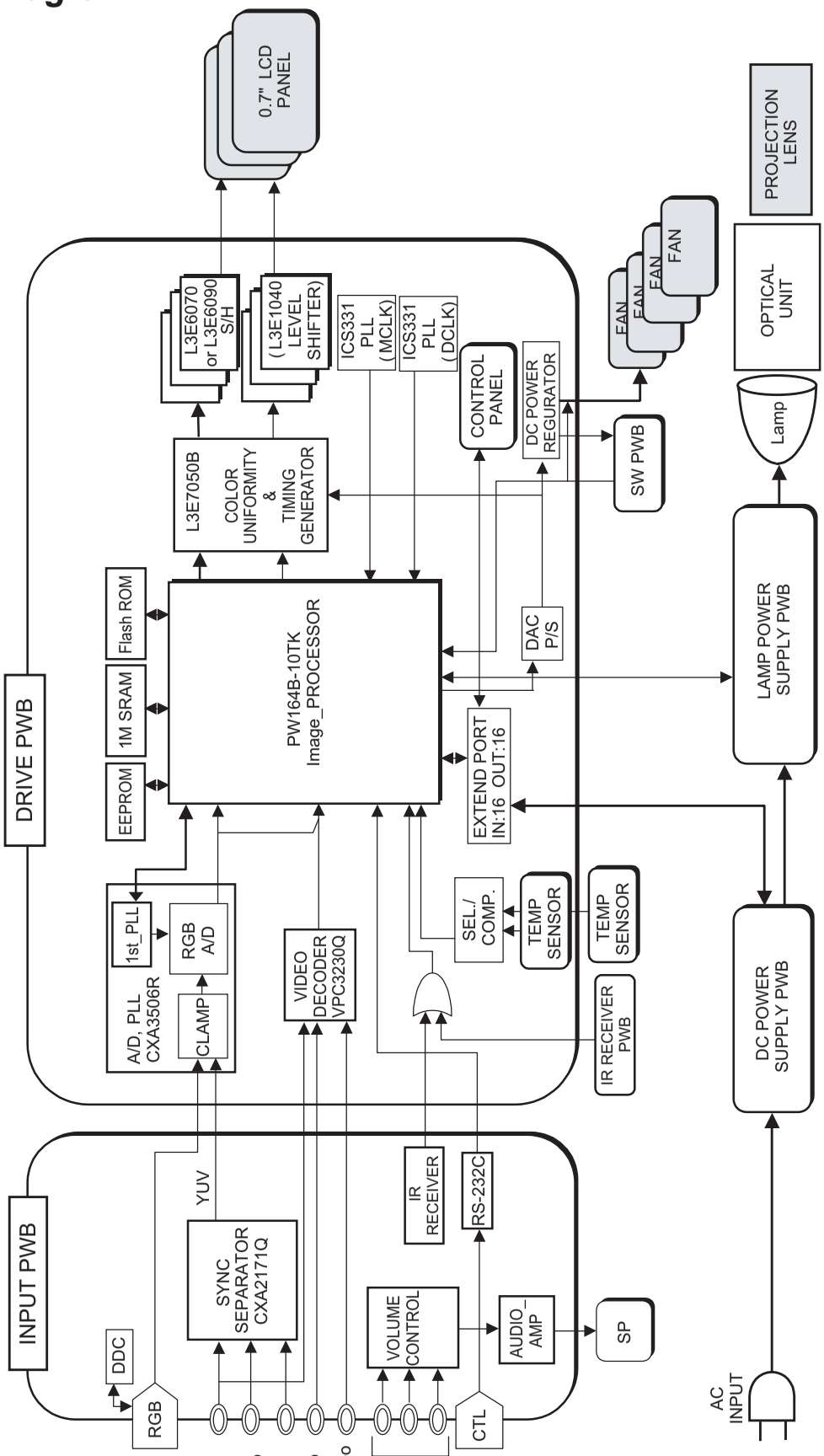
● Setup of Filter time (“ON” or “OFF”)

1. Select the “FILTER TIME” on the OSD using button “▼” by the SERVICE MENU.

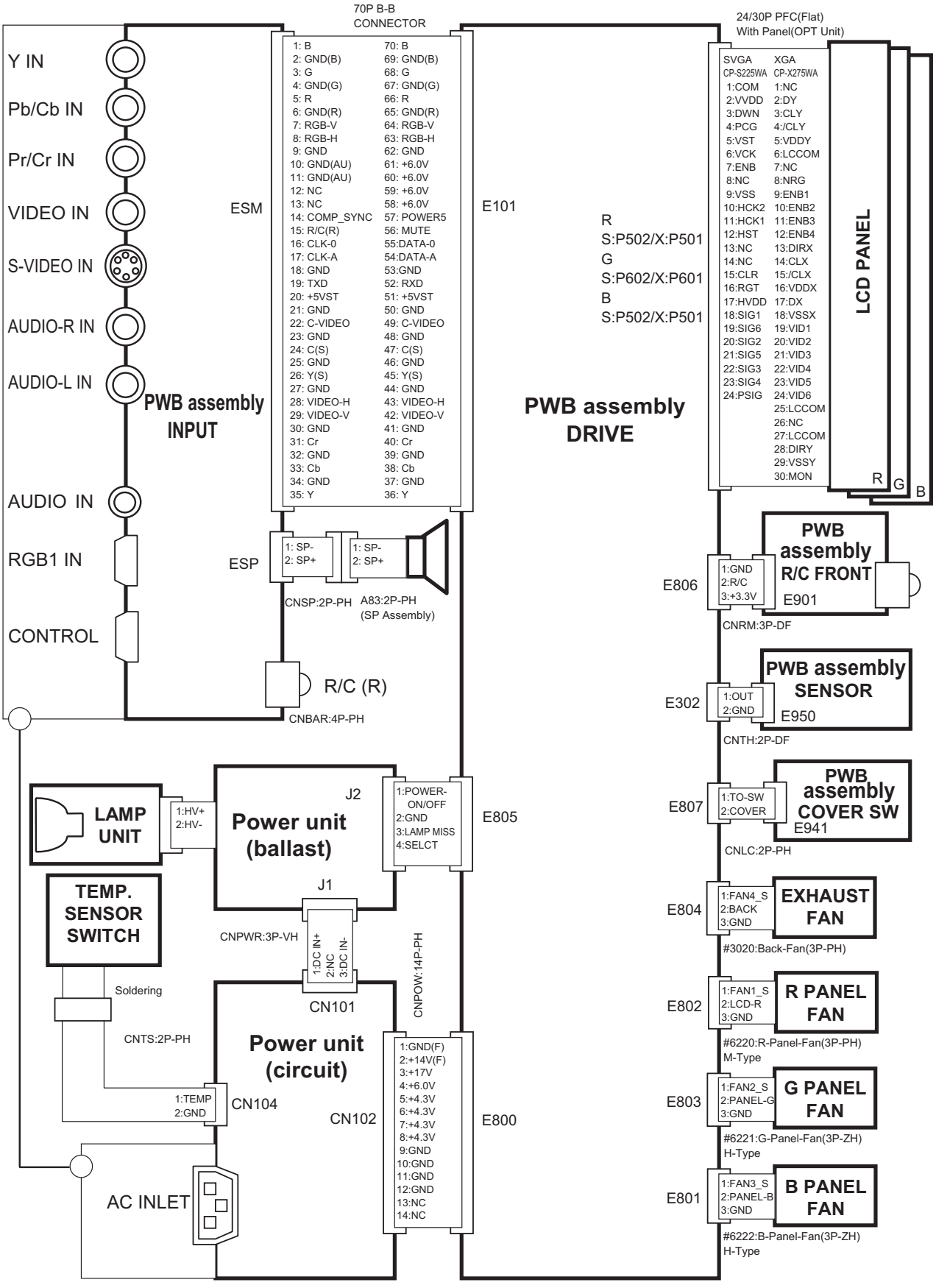


2. ON : Select the “ON” on the OSD using button “▶”.
   OFF : Select the “OFF” on the OSD using button “◀”.
3. The OSD will be ended by no operation for 10 seconds or change of input signal. To end immediately, use one of buttons except buttons “▲”, “▼”, “◀”, “▶”.

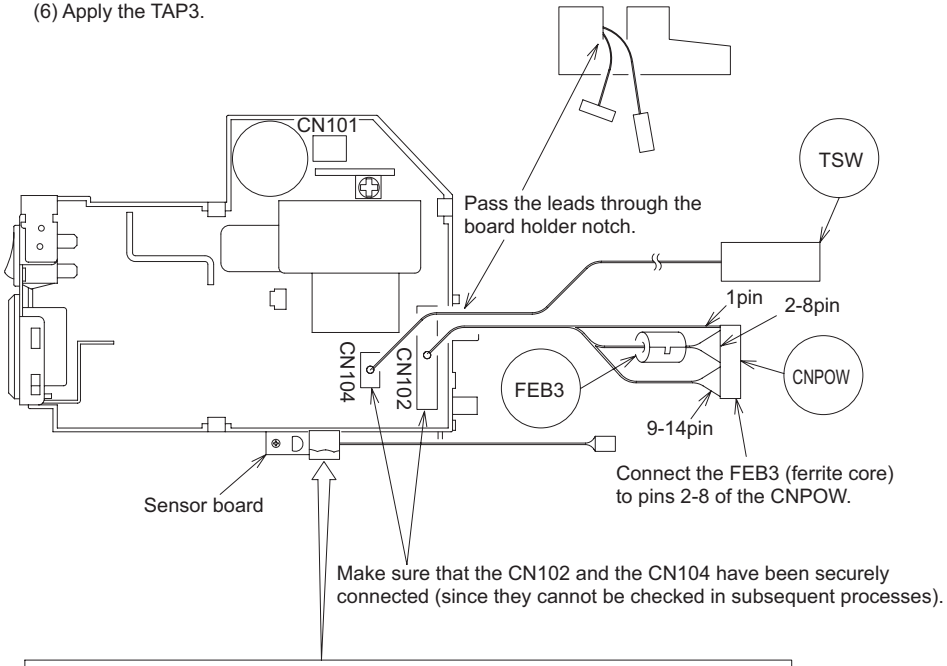
7. Block Diagram



8. Connector Connection Diagram

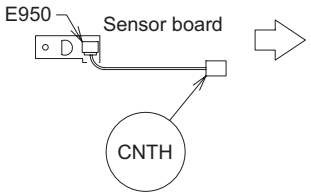


Wiring for circuit power supply board
(1) Keep a record of the circuit power supply lot number in the 100% inspection record.
(2) Connect the TSW.
(3) Install the FEB3.
(4) Connect the CNPOW.
(5) Connect the CNTH.
(6) Apply the TAP3.

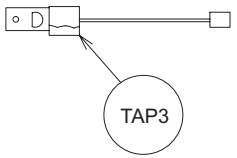


Install the sensor board after completing the following steps:

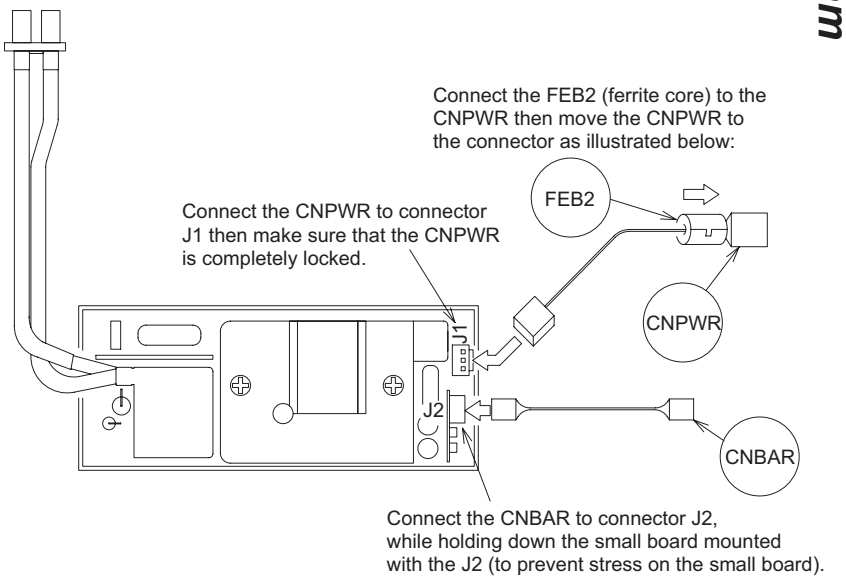
Connect the CNTH to connector E950 on the sensor board.

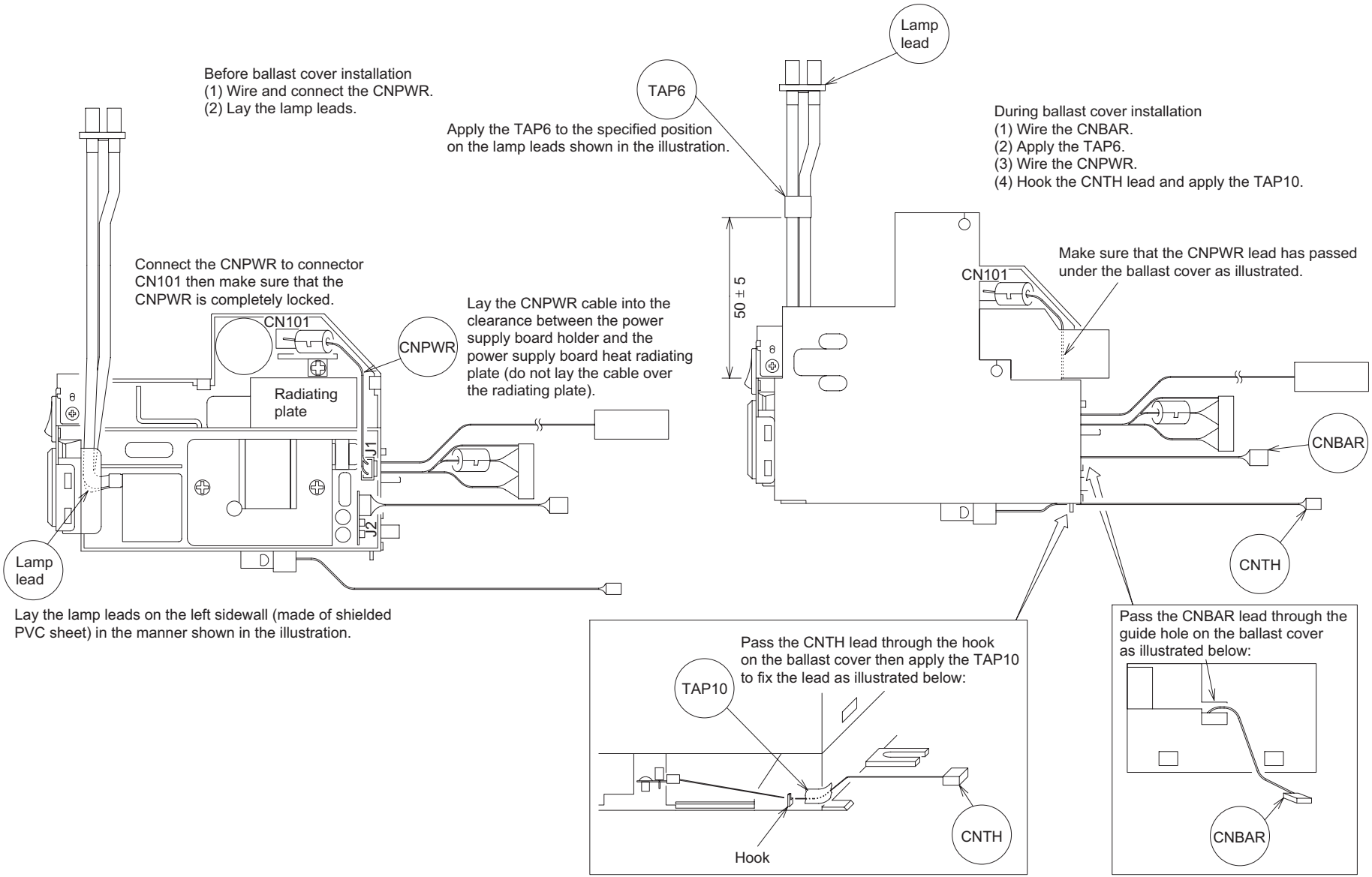


Make sure that connector E950 has been securely connected then apply the TAP3 (for preventing detachment).



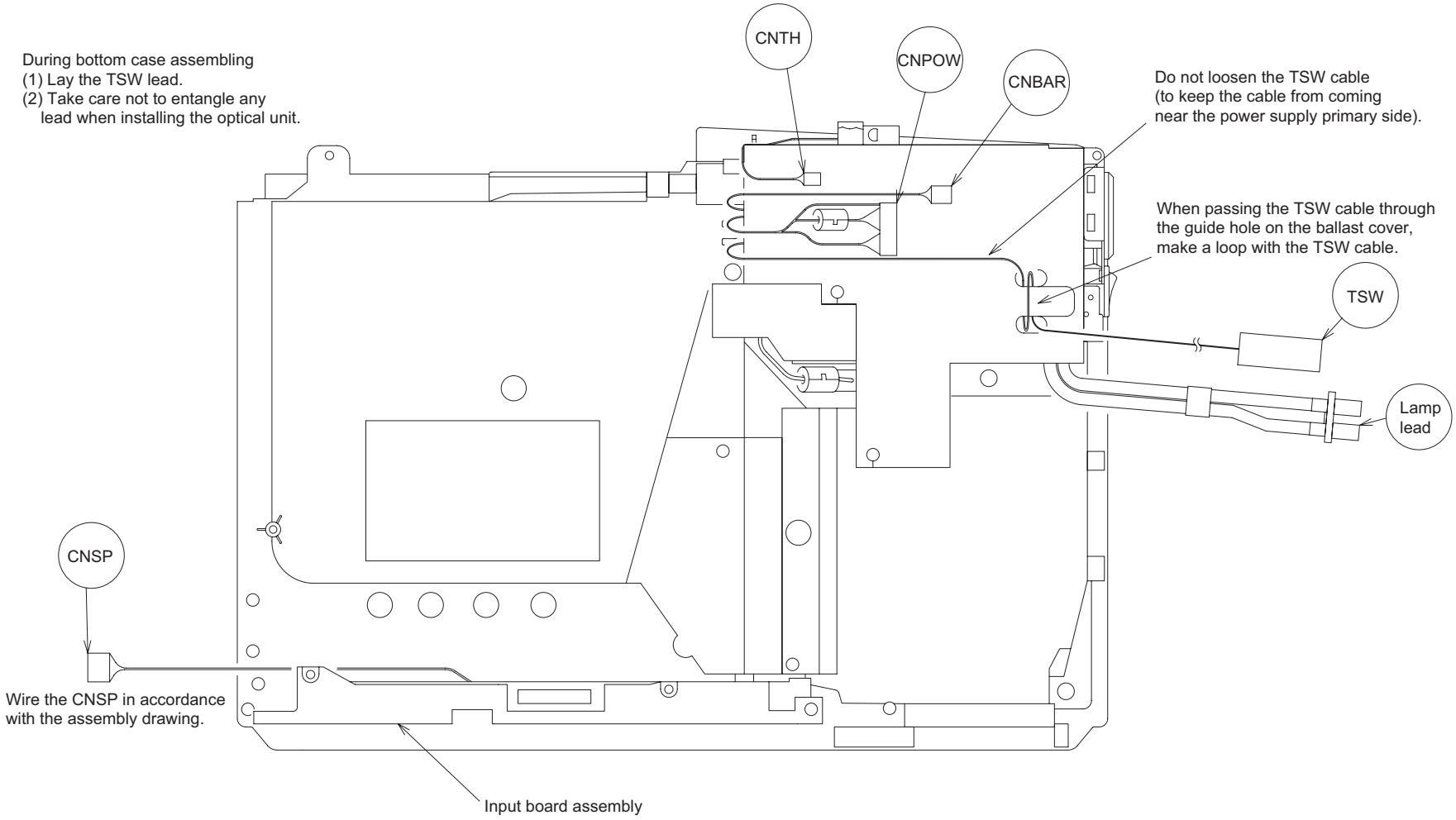
Wiring for ballast power supply board
(1) Keep a record of the ballast power supply lot number in the 100% inspection record.
(2) Connect the CNPWR.
(3) Install the FEB2.
(4) Connect the CNBAR.




Before ballast cover installation
(1) Wire and connect the CNPWR.
(2) Lay the lamp leads.
Connect the CNPWR to connector CN101 then make sure that the CNPWR is completely locked.
CN101
CNPWR
Radiating plate
J1
J2
D
Lamp lead
Lay the CNPWR cable into the clearance between the power supply board holder and the power supply board heat radiating plate (do not lay the cable over the radiating plate).
Lay the lamp leads on the left sidewall (made of shielded PVC sheet) in the manner shown in the illustration.
TAP6
Apply the TAP6 to the specified position on the lamp leads shown in the illustration.
Lamp lead
During ballast cover installation
(1) Wire the CNBAR.
(2) Apply the TAP6.
(3) Wire the CNPWR.
(4) Hook the CNTH lead and apply the TAP10.
50 ± 5
CN101
Make sure that the CNPWR lead has passed under the ballast cover as illustrated.
CNBAR
D
CNTH
Pass the CNTH lead through the hook on the ballast cover then apply the TAP10 to fix the lead as illustrated below:
TAP10
CNTH
Hook
Pass the CNBAR lead through the guide hole on the ballast cover as illustrated below:
CNBAR

Wiring for Bottom Case Assembling

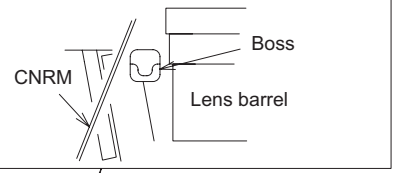
Before installing the optical unit, put all of the leads away from where the optical unit is installed as illustrated below so no lead can become entangled.

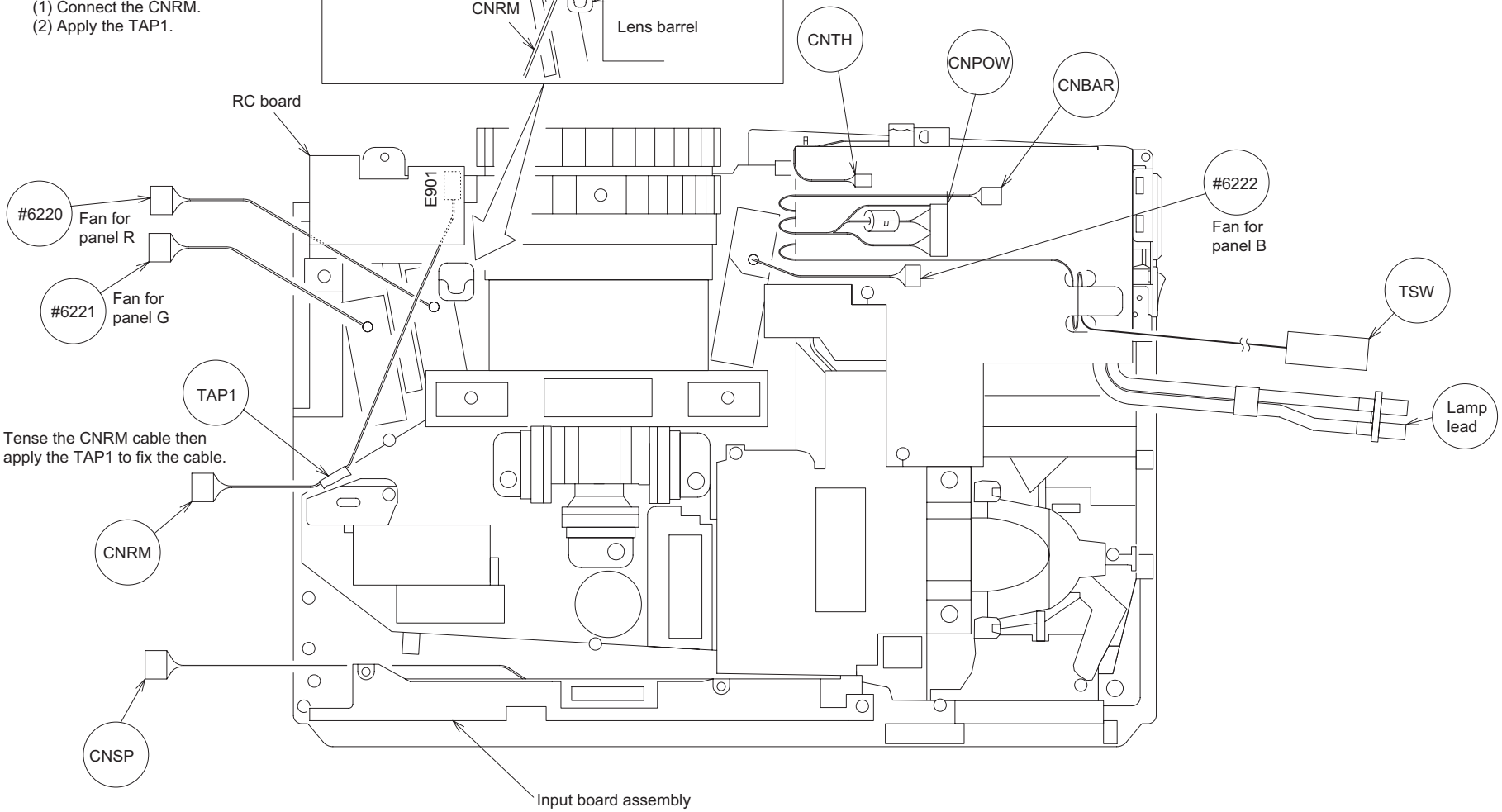


Wiring for Optical Unit Installation

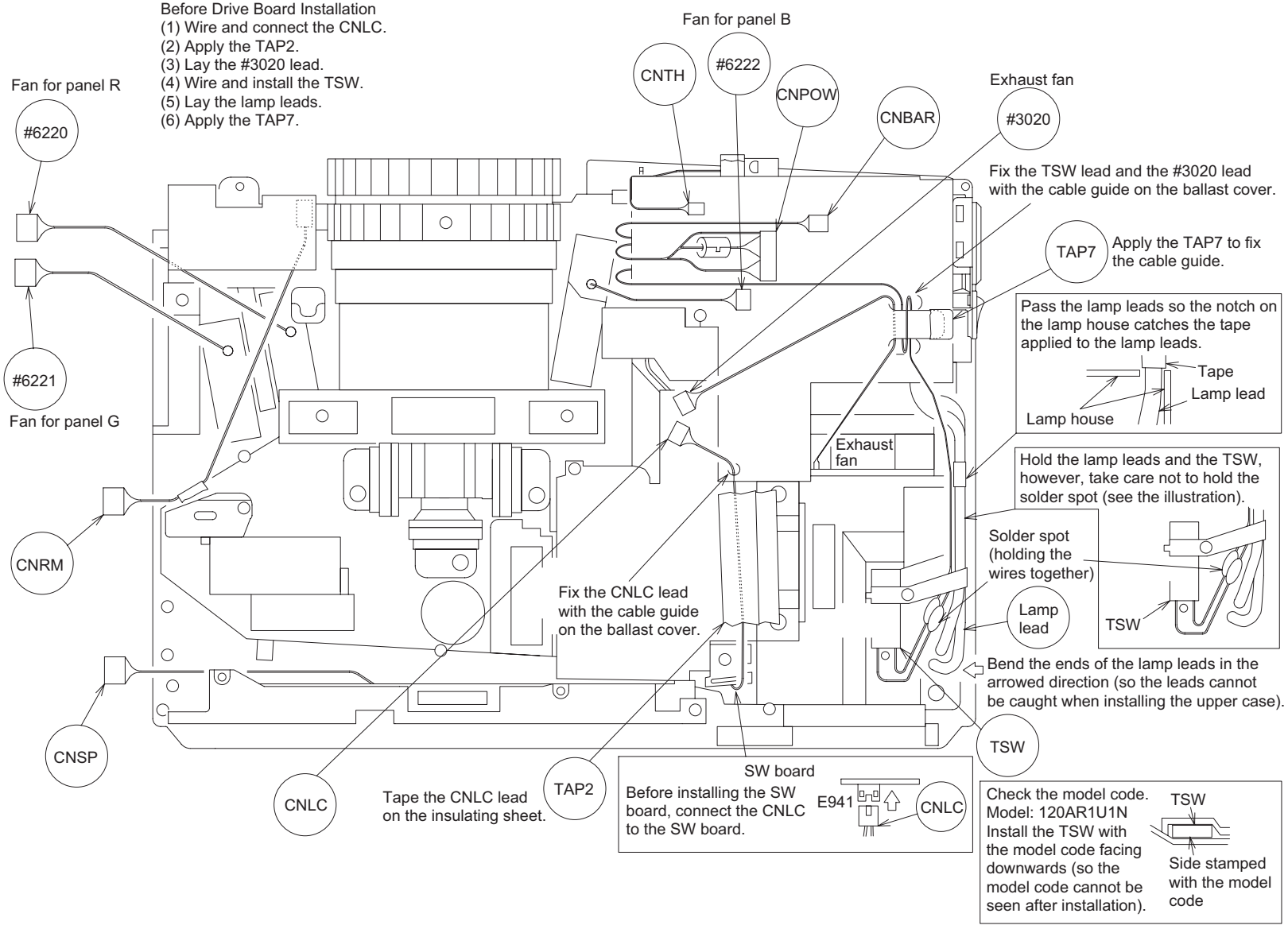
During Optical Unit Installation
(1) Connect the CNRM.
(2) Apply the TAP1.

Pass the CNRM cable through the specified position illustrated below and avoid passing it between the boss and the lens barrel (to prevent the lens from contacting the cable).





Wiring before Drive Board Installation.

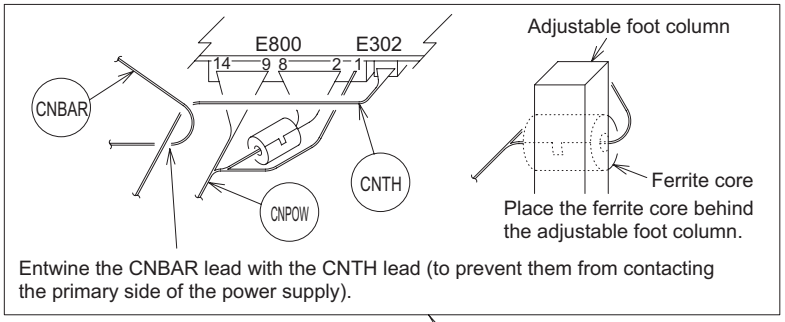


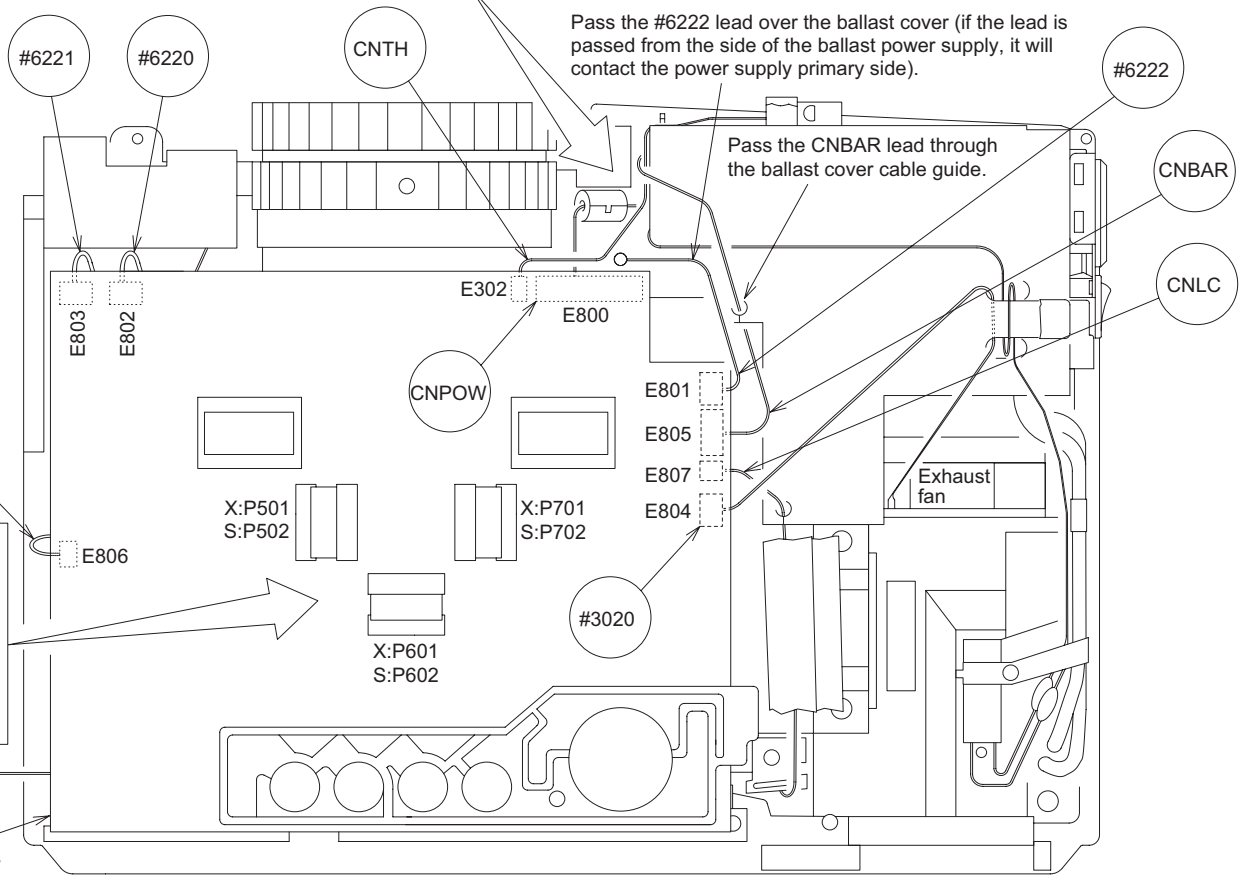
Wiring for Drive Board Installation

Procedure

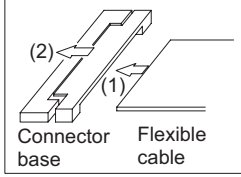
(1) Before installing the drive board, connect the CNBAR, the #6222, the CNTH, the CNPOW, the #6220 and the #6221 while holding the drive board at an inclined angle with your hand.
(2) Put the drive board in the position where you install it, while passing the panel flexible cable through the slit on the drive board (make sure that the drive board has been securely connected to the input board).
(3) Pass the CNBAR lead through the cable guide on the ballast cover.
(4) Connect the CNRM, the CNLC, the #3020 and the panel flexible cable.

During drive board installation
(1) Wire and connect the CNBAR and the #6222.
(2) Connect the CNTH, the CNPOW, the #6220 and the #6221.
(3) Connect the CNRM, the CNLC and the #3020.
(4) Connect the flexible cable for the liquid crystal panel.





For details on flexible cable connection, see the following drawing:

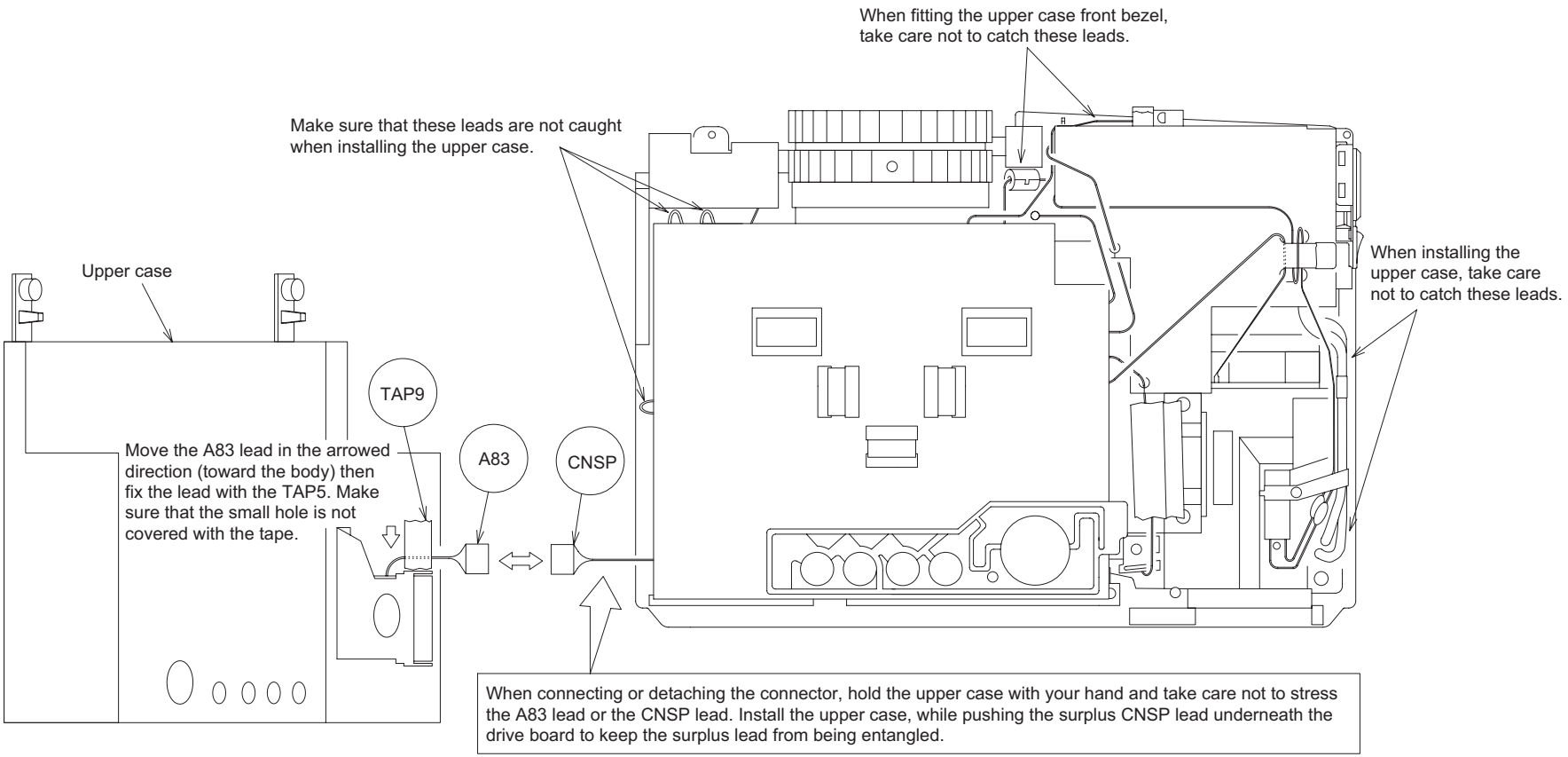


(1) Securely insert the flexible cable into the connector base (note that the connector is a bottom contact type so make sure that the direction in which you insert it is appropriate).
(2) Move the lock hinge in the arrowed direction until it is completely locked.

Wiring for Upper Case Installation

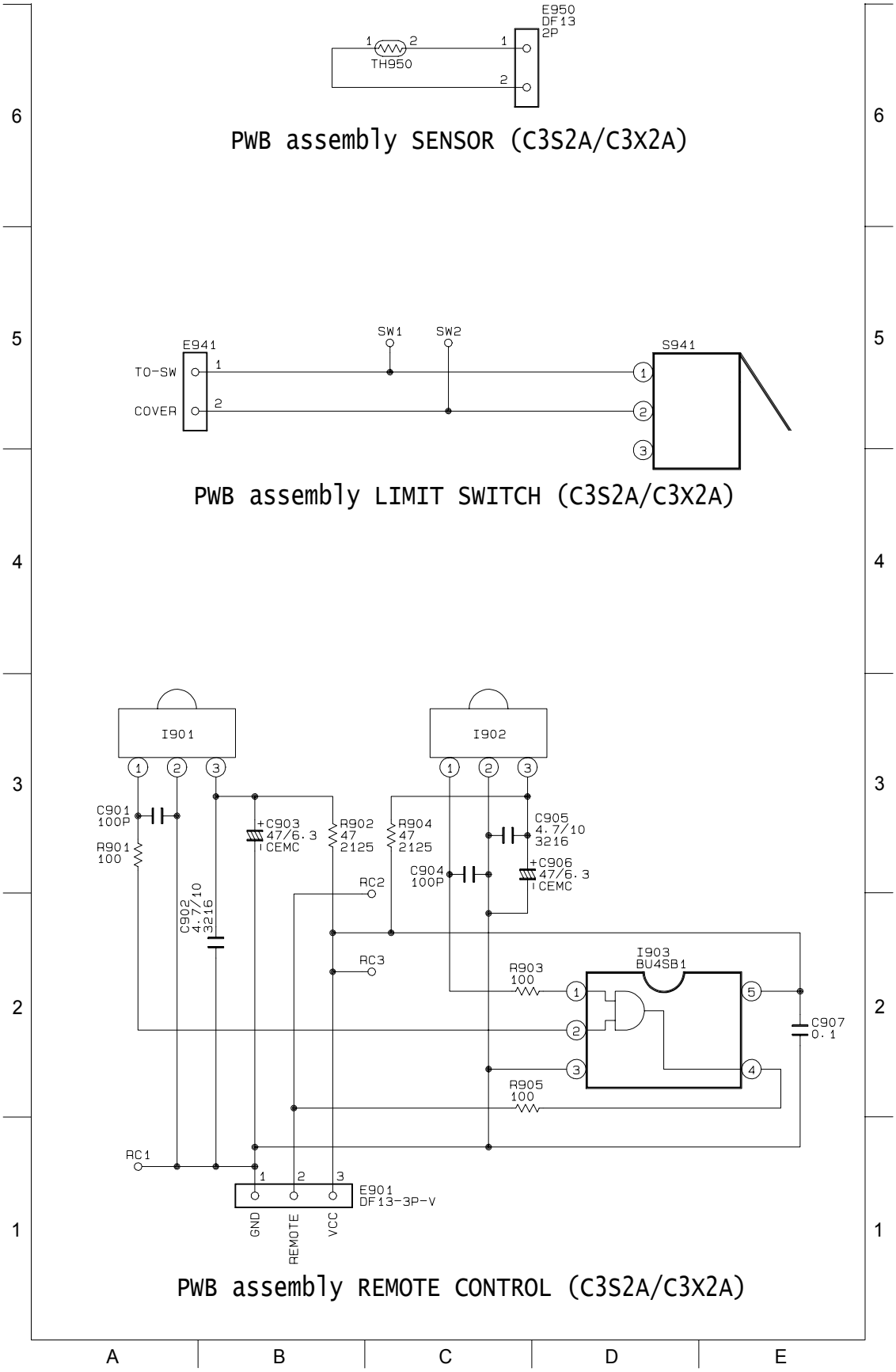
During upper case installation

(1) Apply the TAP9.
(2) Connect the CNSP to the A83.
(3) Take care not to entangle any lead.

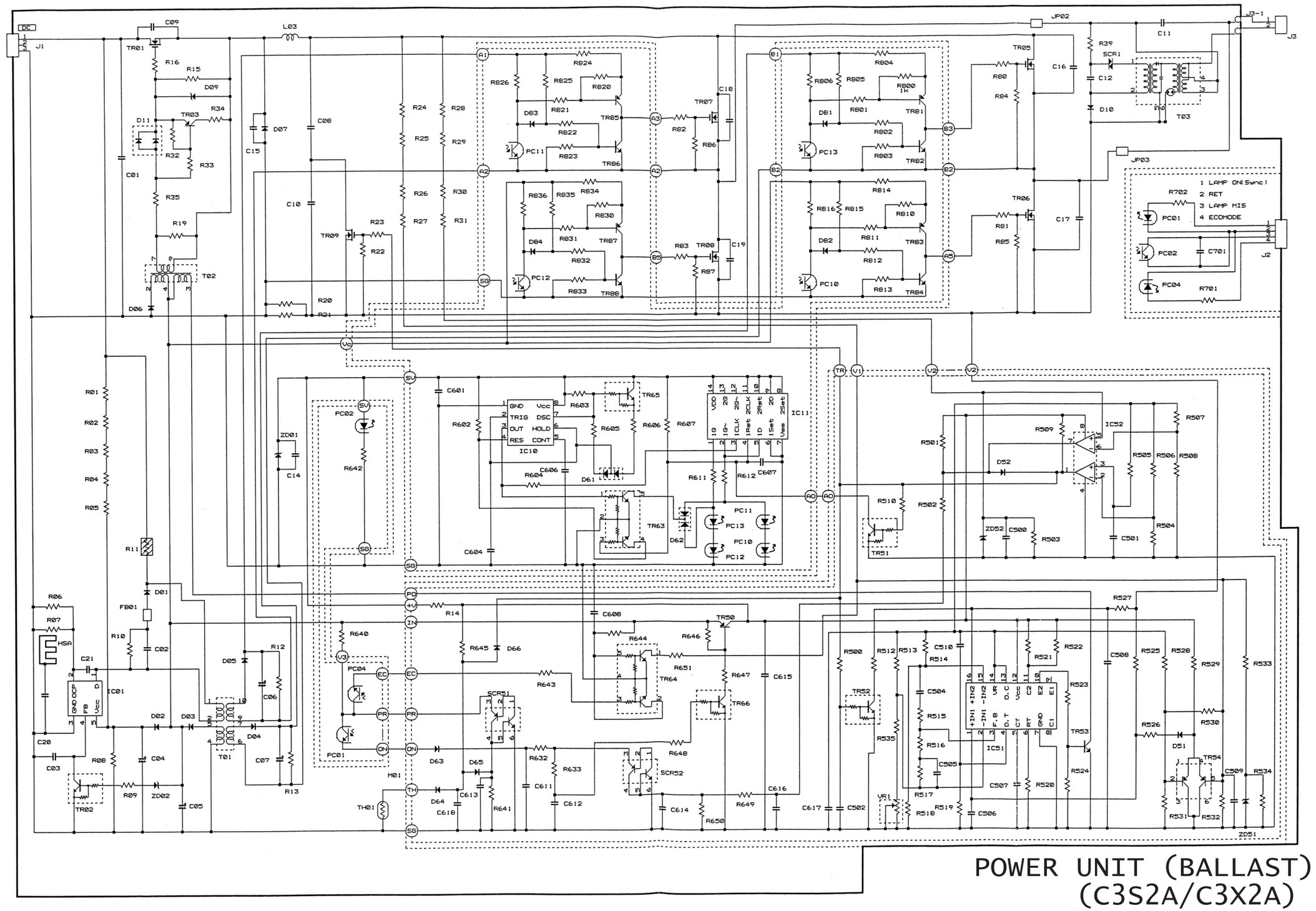


10. Basic Circuit Diagram

Parts with hatching are not mounted



MEMO


POWER UNIT (BALLAST)
(C3S2A/C3X2A)
J1
J2
J3
JP02
JP03
T01
T02
T03
IC01
IC10
IC11
IC51
IC52
SCR1
SCR51
SCR52
TR01
TR02
TR03
TR05
TR06
TR07
TR08
TR09
TR50
TR51
TR52
TR53
TR54
TR63
TR64
TR65
TR66
PC01
PC02
PC04
PC10
PC11
PC12
PC13
1 LAMP ON(Sync)
2 RET
3 LAMP MIS
4 ECOMODE
HSA
TH01
VR1
ZD01
ZD02
ZD51
ZD52
M01
FB01
D01
D02
D03
D04
D05
D06
D07
D09
D10
D11
D51
D52
D61
D62
D63
D64
D65
D66
DB1
DB2
DB3
DB4
L03
C01
C02
C03
C04
C05
C06
C07
C08
C09
C10
C11
C12
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R01
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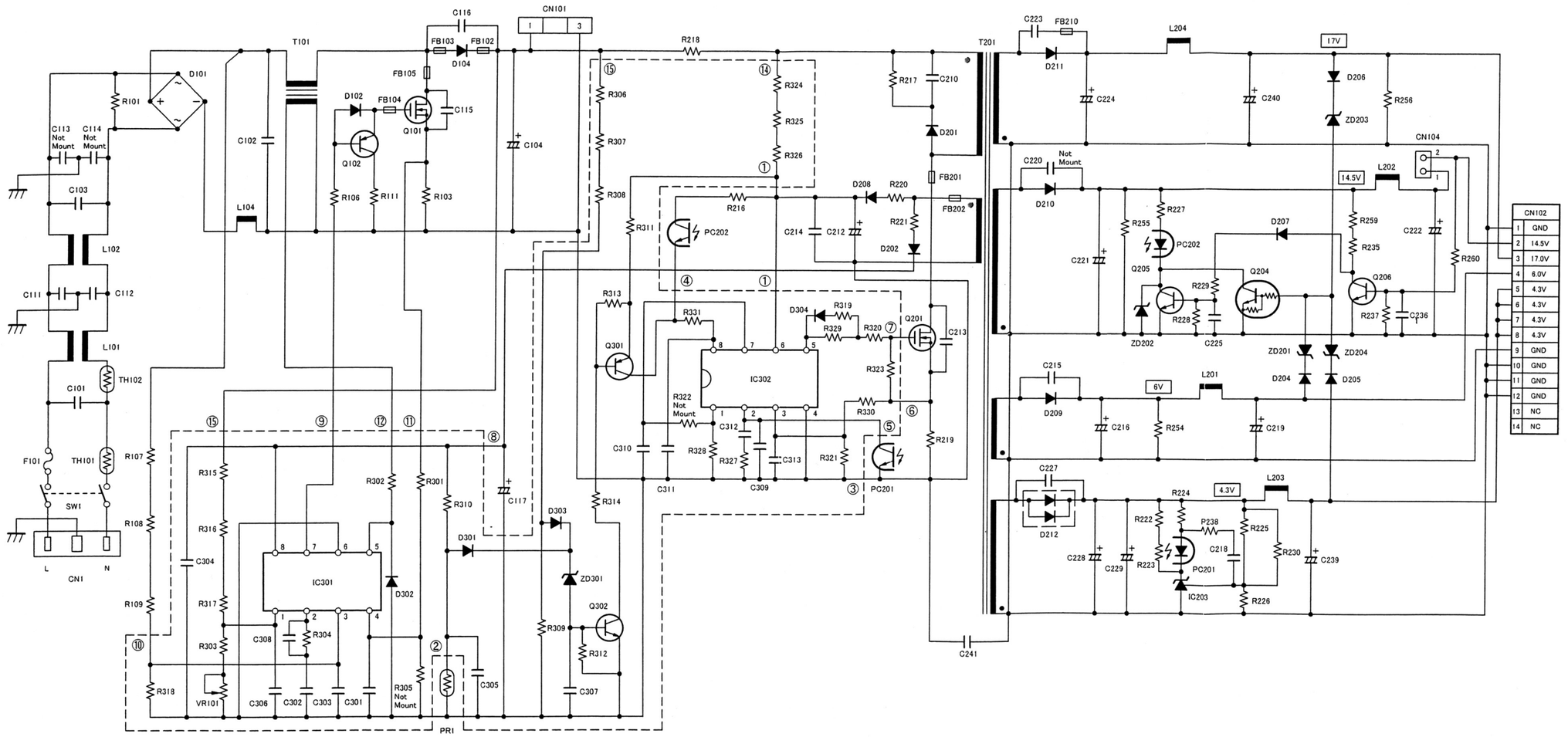
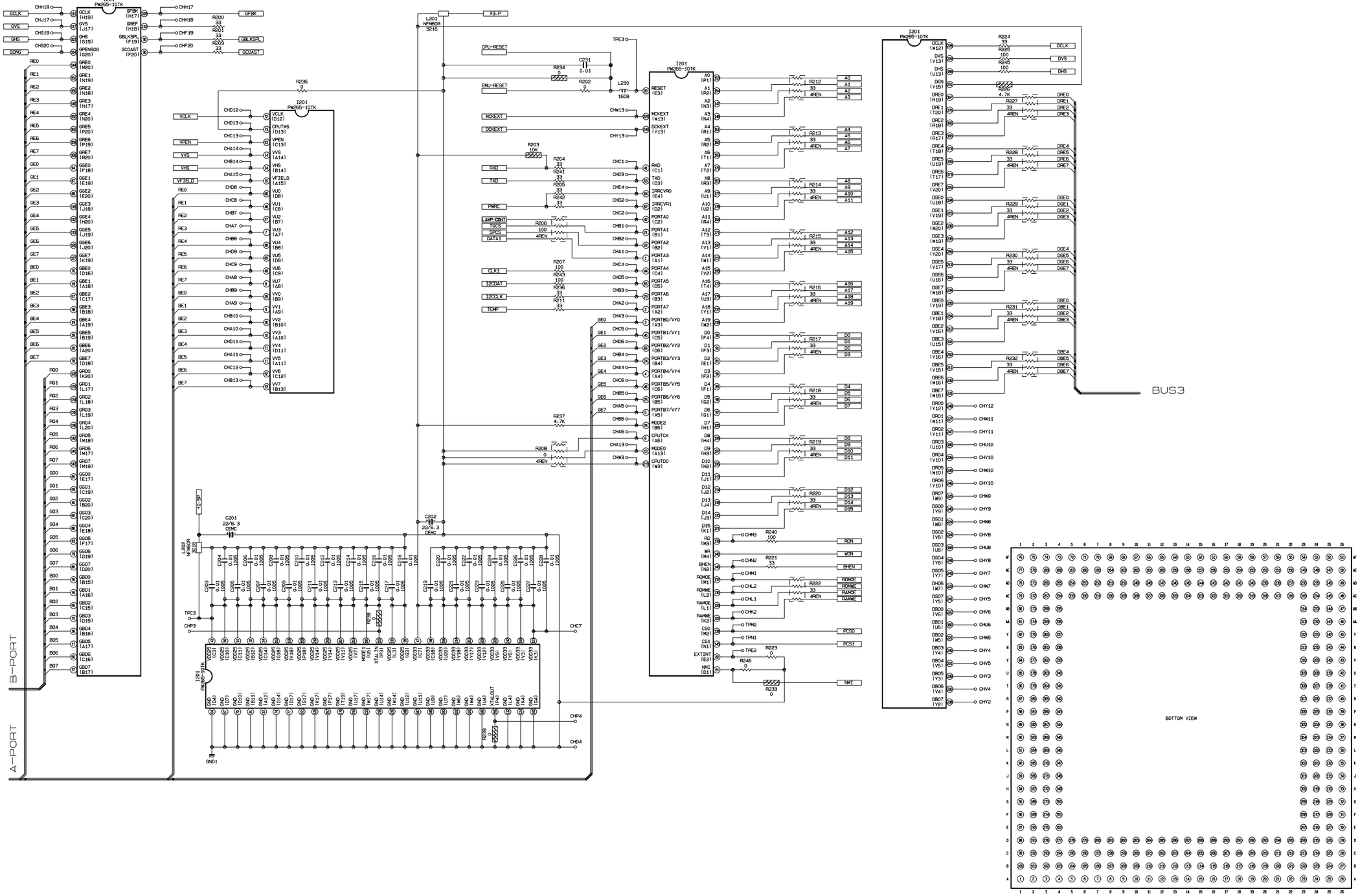
R530
R531
R532
R533
R534
R535
R602
R603
R604
R605
R606
R607
R611
R612
R632
R633
R640
R641
R642
R643
R644
R645
R646
R647
R648
R649
R650
R651
R701
R702
R800
R801
R802
R803
R804
R805
R806
R810
R811
R812
R813
R814
R815
R816
R831
R832
R833
R834
R835
R836
A1
A2
A3
A5
B1
B2
B3
B5
A0
B0
SG
5V
Vc
V1
V2
V3
TR
PC
+U
IN
EC
PR
ON
TH

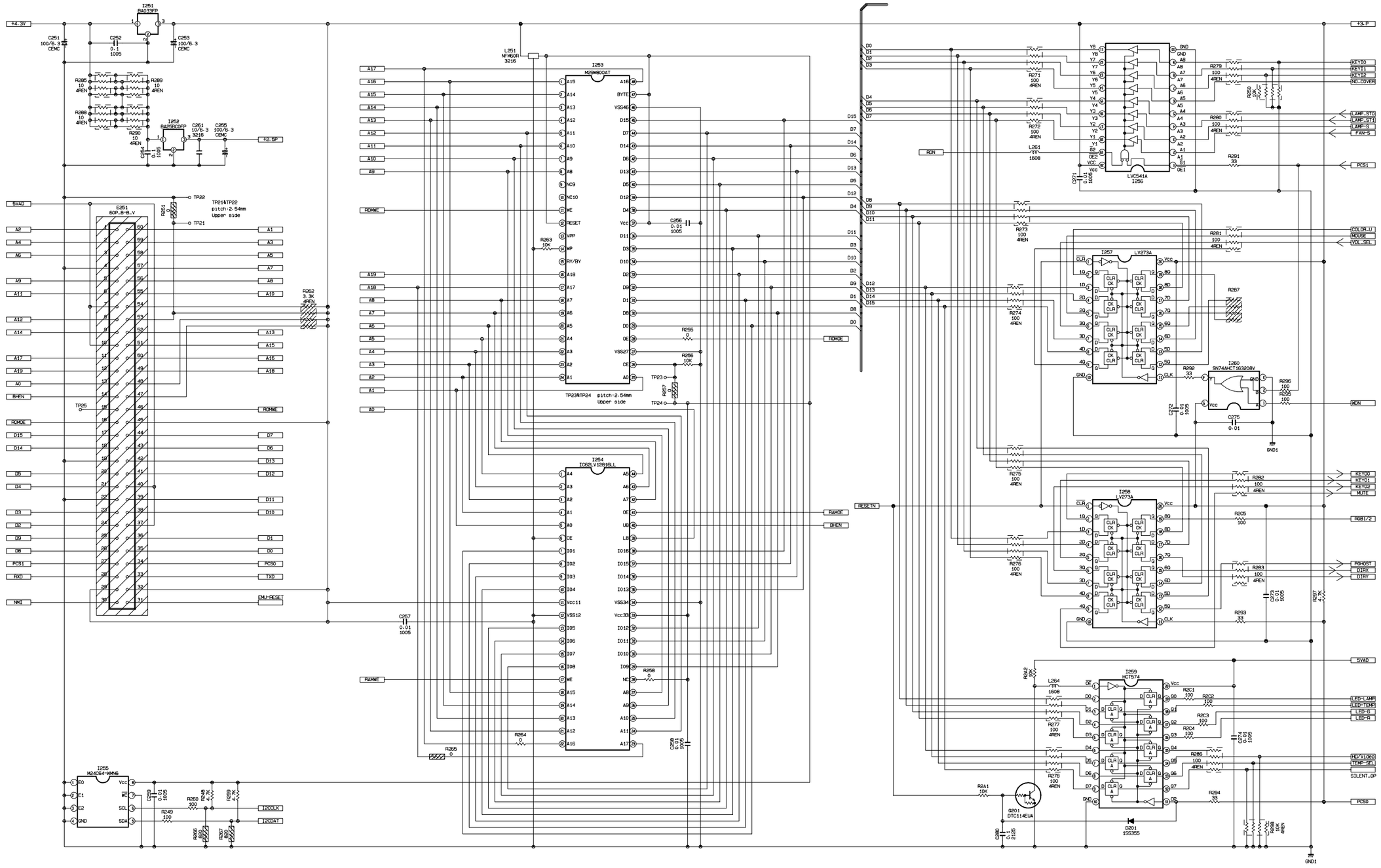
41



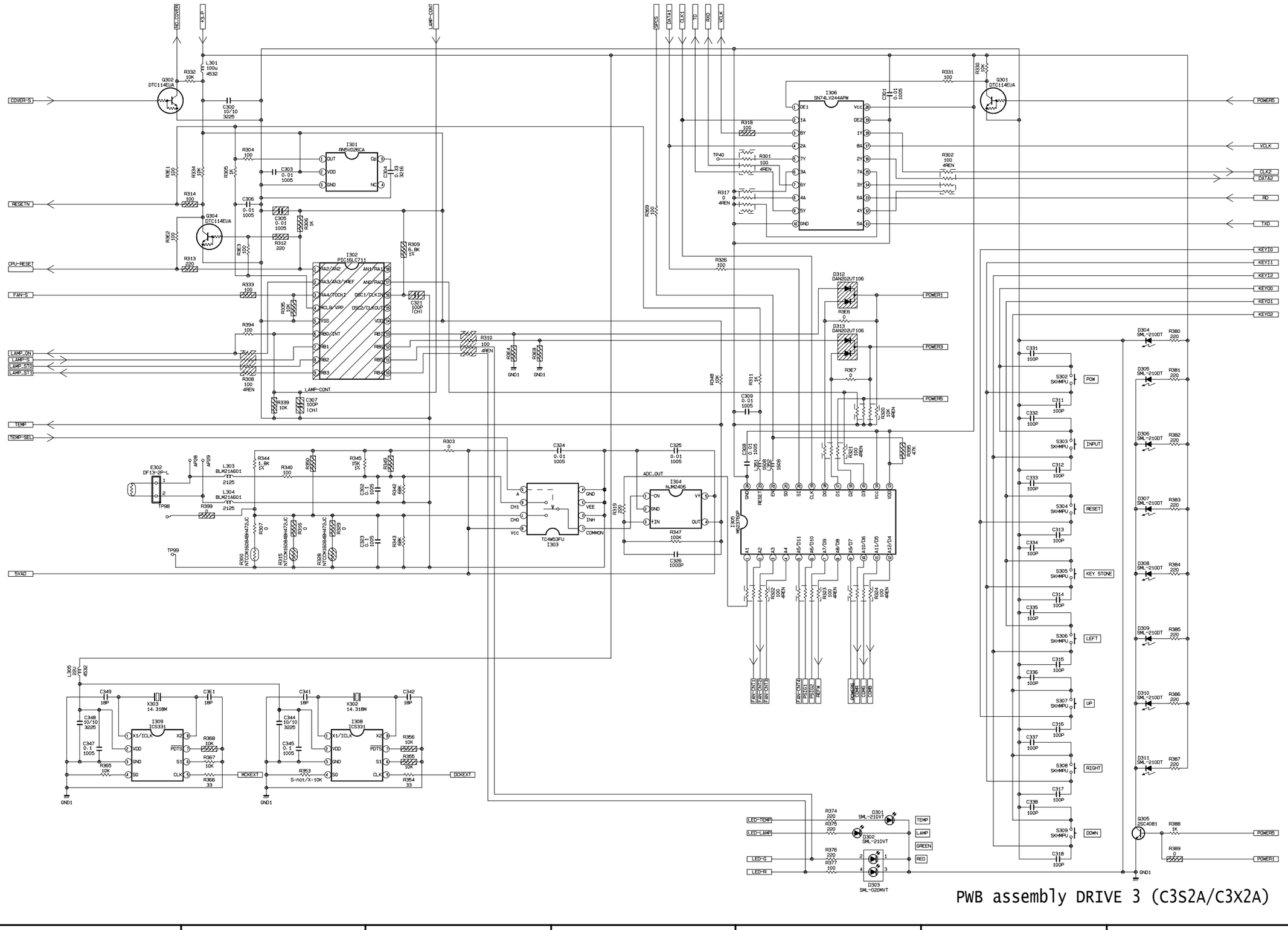
POWER UNIT (CIRCUIT)(C3S2A/C3X2A)

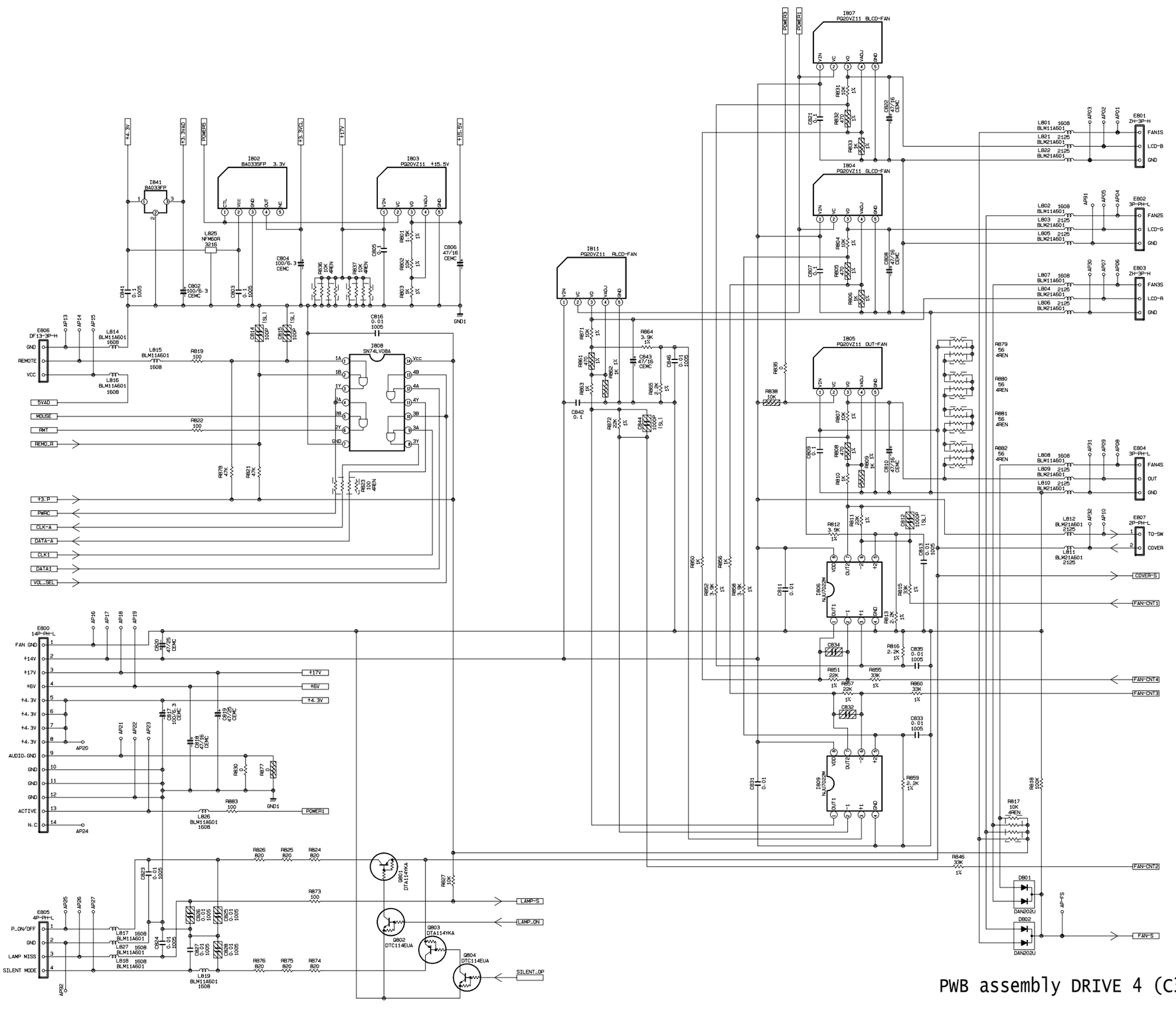


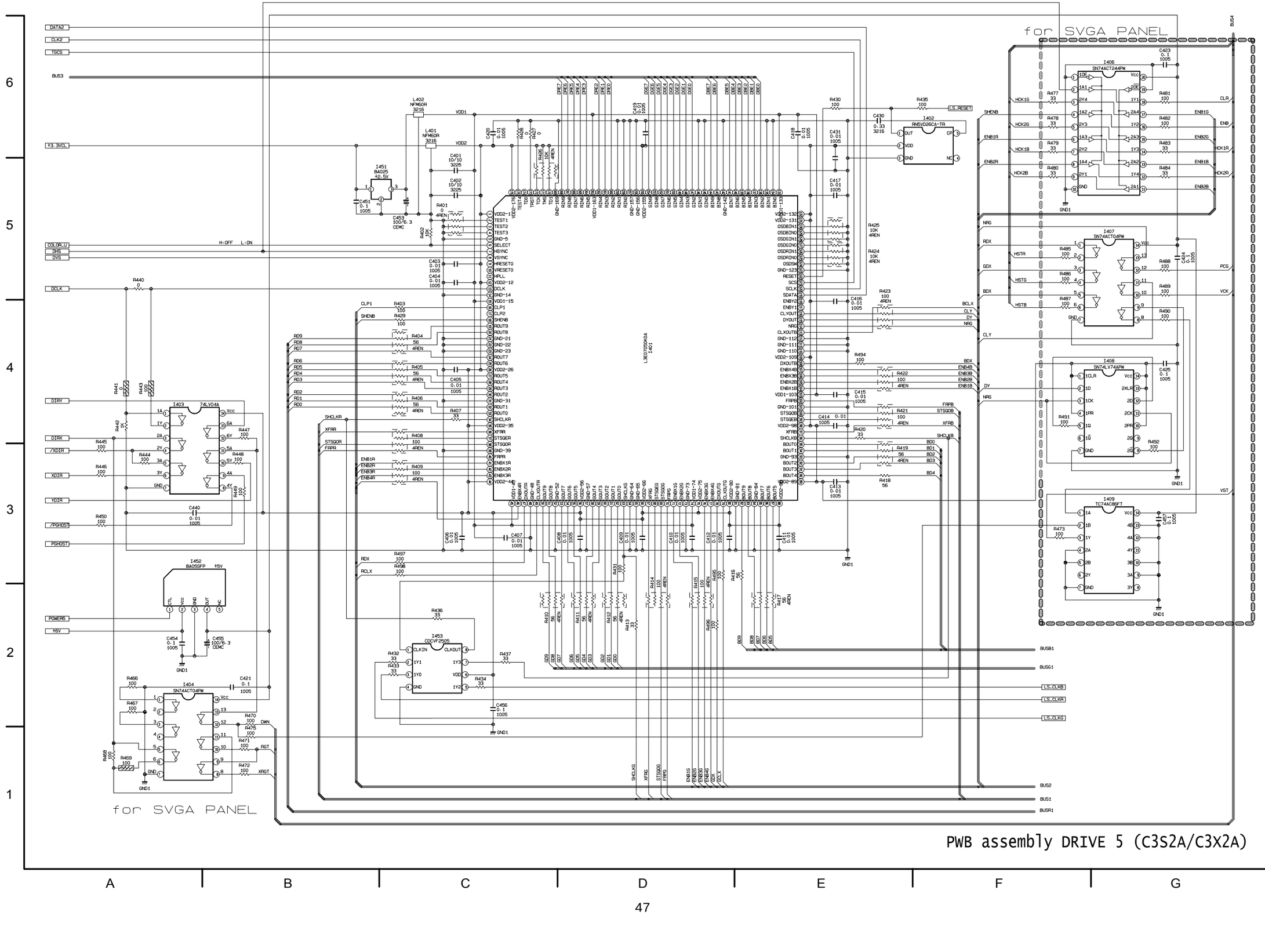
PWB assembly DRIVE 1 (C3S2A/C3X2A)

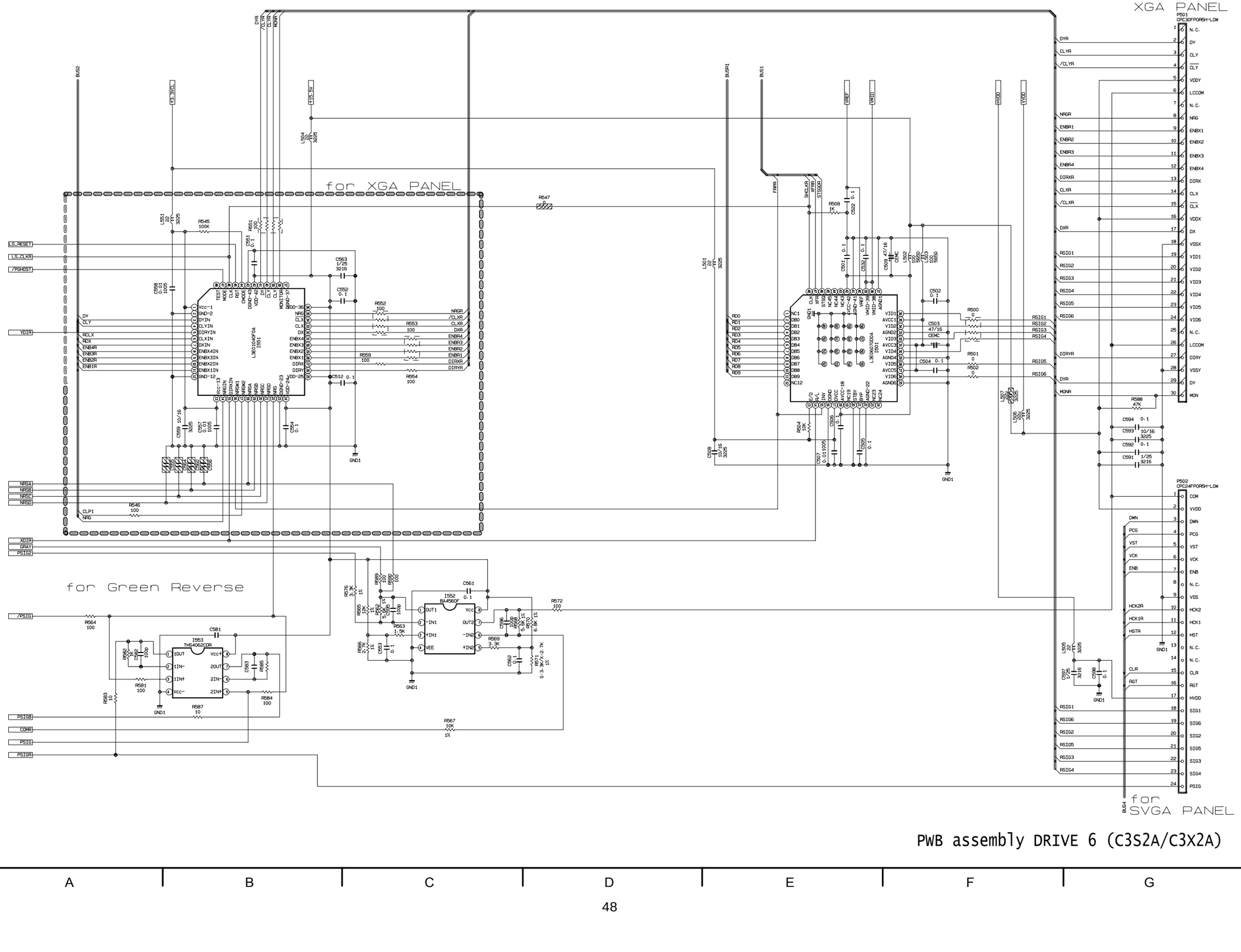


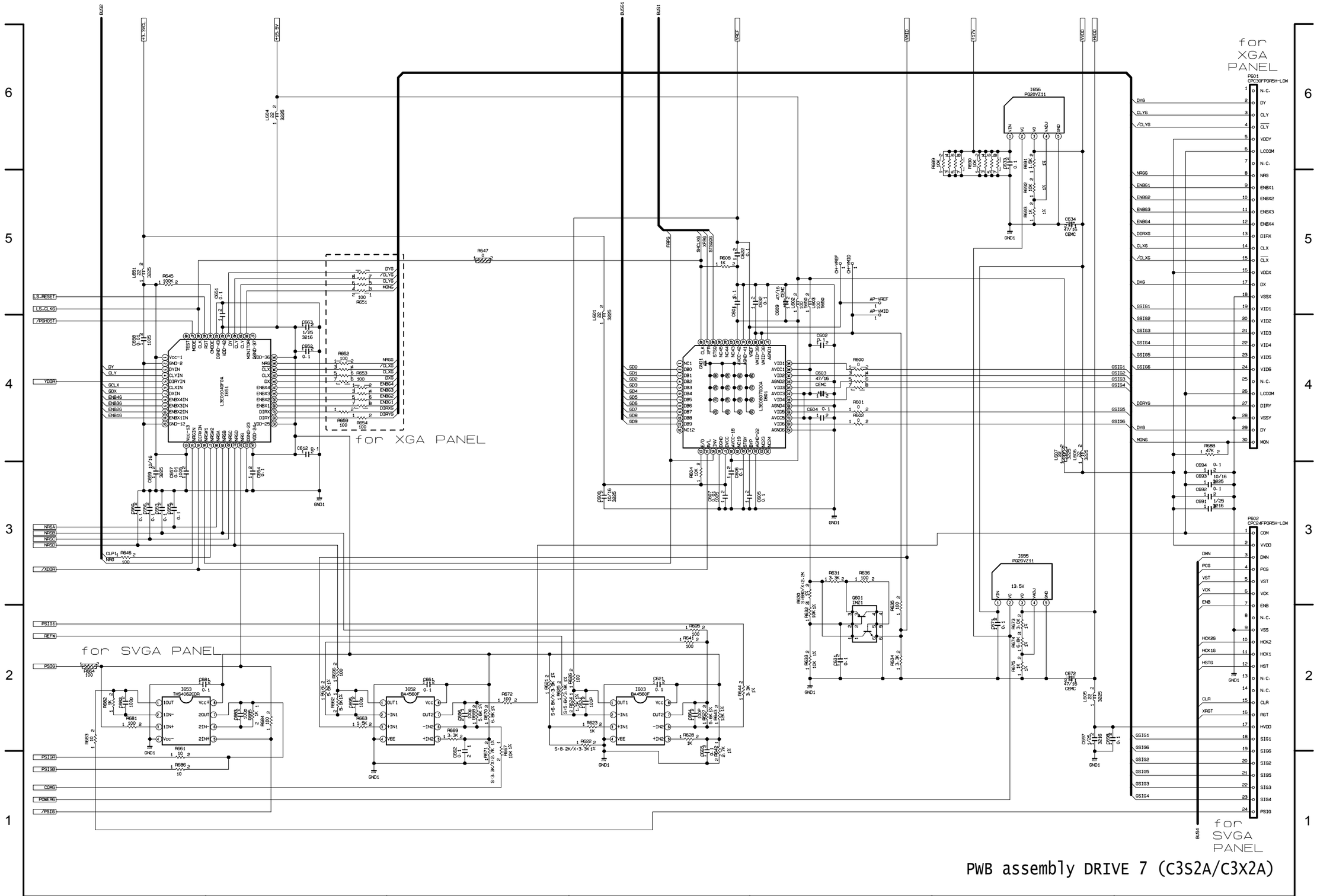
PWB assembly DRIVE 2 (C3S2A/C3X2A)

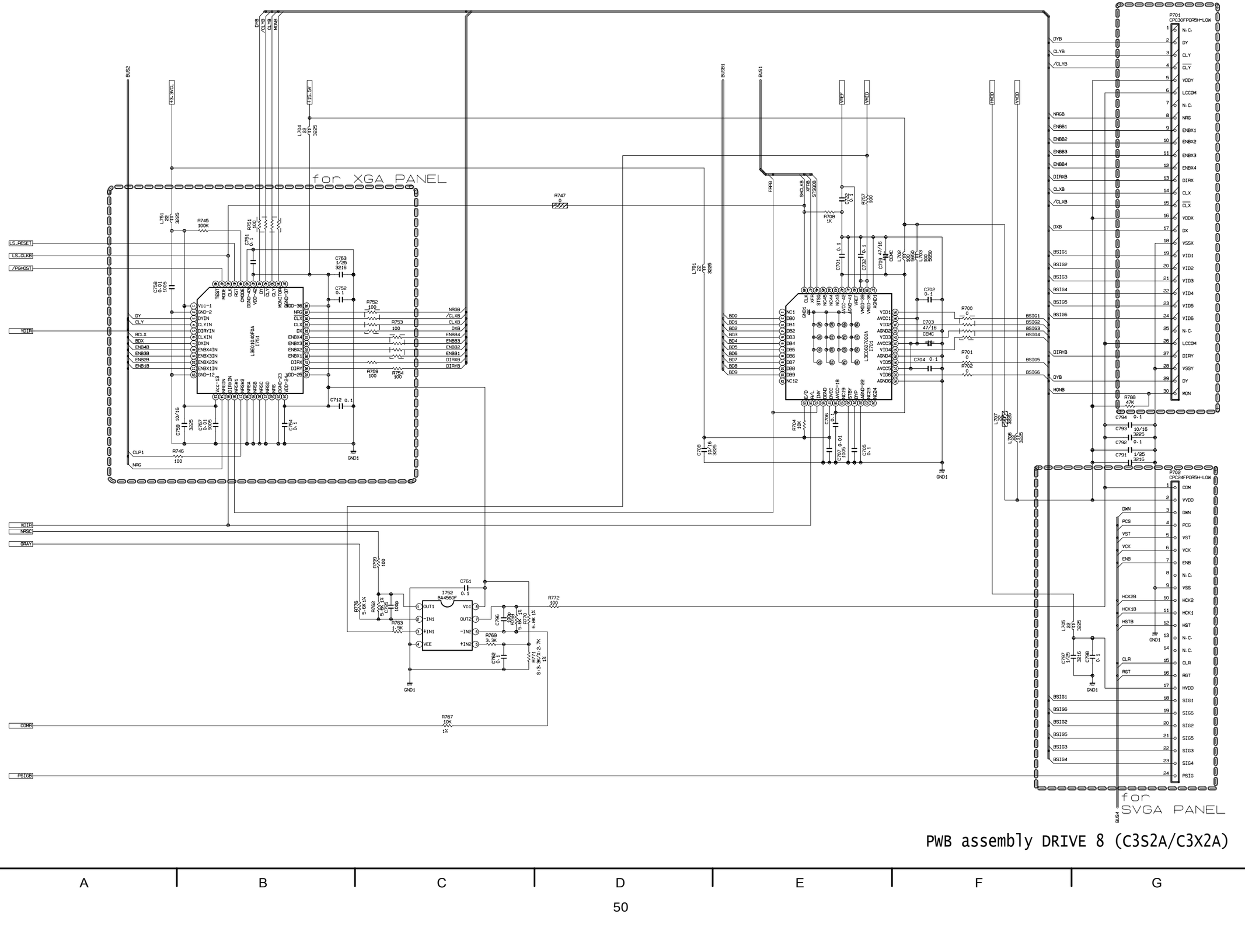

COVER-S
RESETN
CPU-RESET
FAN-S
LAMP_ON
LAMP-S
LAMP_STO
LAMP_ST1
TEMP
TEMP-SEL
5VAD
LAMP-CONT
VCLK
TXD
RD
DATA2
CLK2
KEY10
KEY11
KEY12
KEY00
KEY01
KEY02
POWER5
POWER1
POWER3
POW
INPUT
RESET
KEY STONE
LEFT
UP
RIGHT
DOWN
TEMP
LAMP
GREEN
RED
LED-TEMP
LED-LAMP
LED-G
LED-R
MCKEXT
DCKEXT
I306 SN74LV244APW
I302 PIC16LC711
I309 ICS331
I308 ICS331
I304 NJM2405
I305 M62376GP
I301 RN5VD25CA
TC4W53FU I303
D301 SML-210VT
D302 SML-210VT
D303 SML-020MVT
Q301 DTC114EUA
Q302 DTC114EUA
Q304 DTC114EUA
Q305 2SC4081
D312 DAN202UT106
D313 DAN202UT106
X303 14.318M
X302 14.318M
E302 DF13-2P-L
TP98
TP99
TP40
PWB assembly DRIVE 3 (C3S2A/C3X2A)

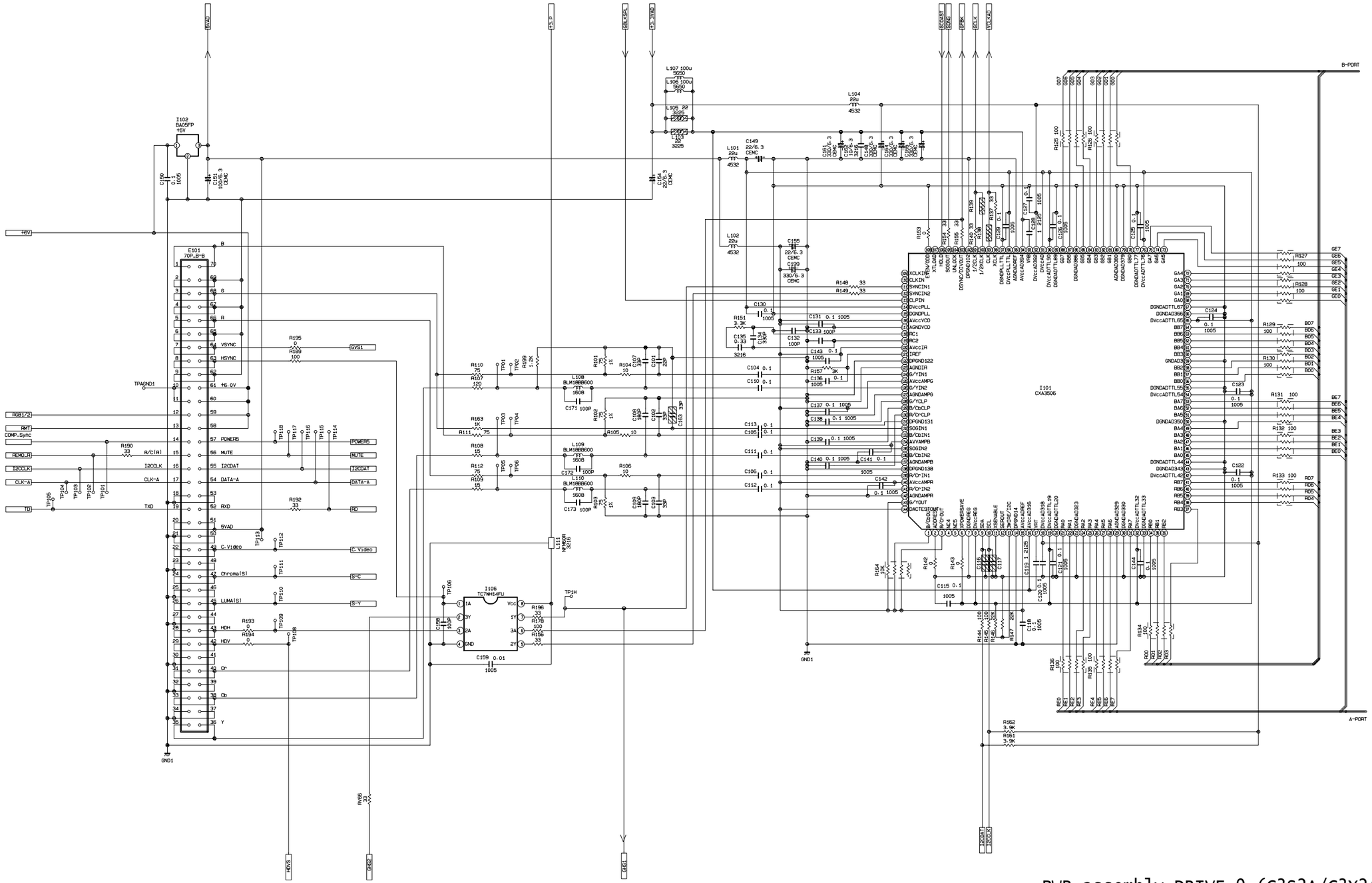

I807 PQ20VZ11 BLCD-FAN
I804 PQ20VZ11 GLCD-FAN
I805 PQ20VZ11 OUT-FAN
I811 PQ20VZ11 RLCD-FAN
I802 BA033SFP 3.3V
I803 PQ20VZ11 +15.5V
I841 BA033FP
I808 SN74LV08A
I806 NJU7052M
I809 NJU7052M
E801 ZH-3P-H
E802 3P-PH-L
E803 ZH-3P-H
E804 3P-PH-L
E807 2P-PH-L
E806 DF13-3P-H
E800 14P-PH-L
E805 4P-PH-L
FAN1S
LCD-B
FAN2S
LCD-G
FAN3S
LCD-R
FAN4S
OUT
TO-SW
COVER
COVER-S
FAN-CNT1
FAN-CNT4
FAN-CNT3
FAN-CNT2
FAN-S
LAMP-S
LAMP_ON
SILENT_OP
P_ON/OFF
LAMP MISS
SILENT MODE
FAN GND
AUDIO.GND
ACTIVE
N.C
REMOTE
VCC
5VAD
MOUSE
RMT
REMO_R
+3.P
PWRC
CLK-A
DATA-A
CLK1
DATA1
VOL_SEL
+4.3V
+3.3VAD
+3.3VDL
+17V
+15.5V
+14
+17V
+6V
+4.3V
GND1
POWER1
PWRDS3
PWRDS1
PWRDS5
PWRDS2
PWRDS4
PWRDS6
PWRDS7
PWRDS8
PWRDS9
PWRDS10
PWRDS11
PWRDS12
PWRDS13
PWRDS14
PWRDS15
PWRDS16
PWRDS17
PWRDS18
PWRDS19
PWRDS20
PWRDS21
PWRDS22
PWRDS23
PWRDS24
PWRDS25
PWRDS26
PWRDS27
PWRDS28
PWRDS29
PWRDS30
PWRDS31
PWRDS32
PWRDS33
PWRDS34
PWRDS35
PWRDS36
PWRDS37
PWRDS38
PWRDS39
PWRDS40
PWRDS41
PWRDS42
PWRDS43
PWRDS44
PWRDS45

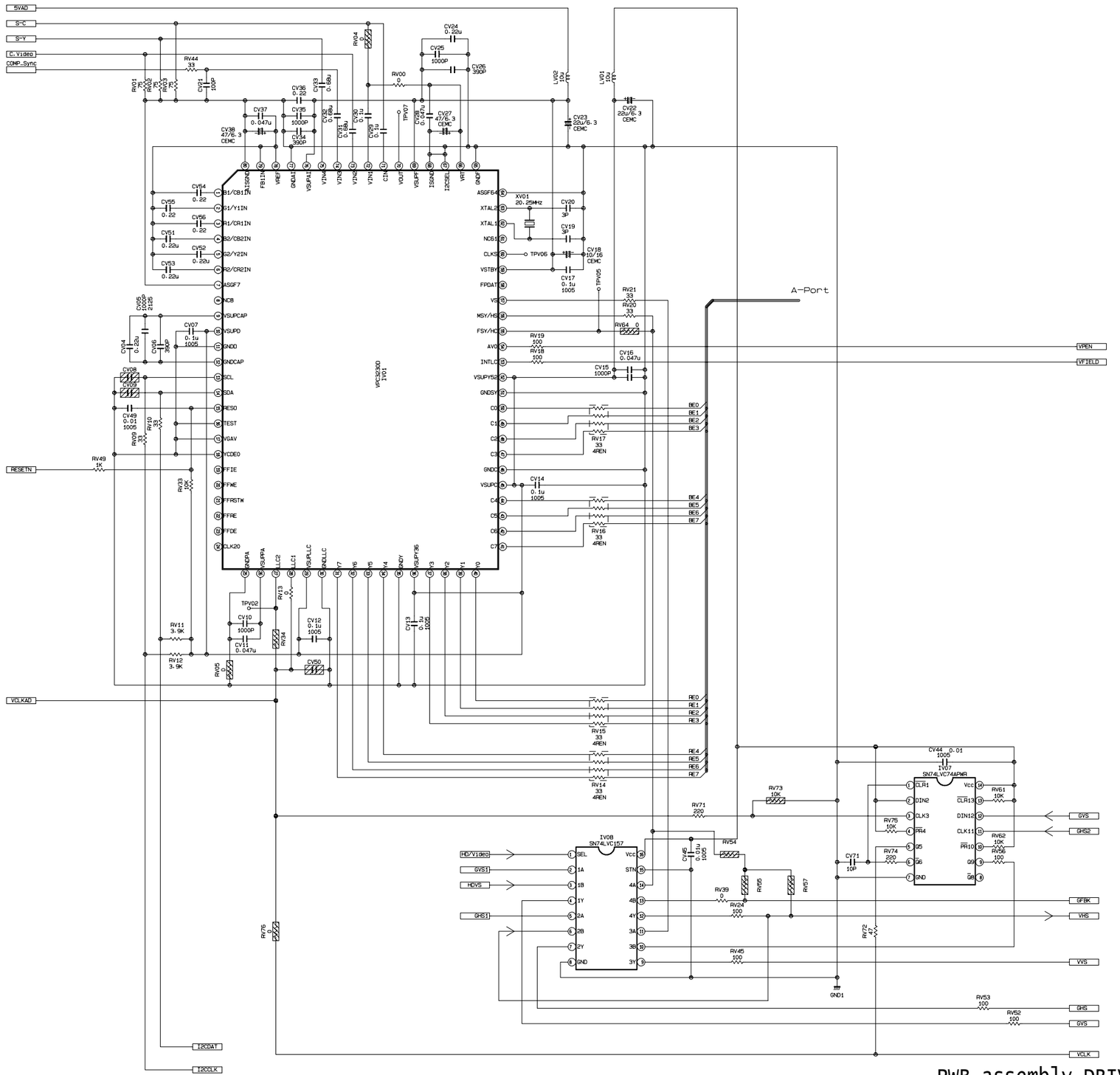

for SVGA PANEL
for SVGA PANEL
PWB assembly DRIVE 5 (C3S2A/C3X2A)


for XGA PANEL
for Green Reverse
for SVGA PANEL
PWB assembly DRIVE 6 (C3S2A/C3X2A)

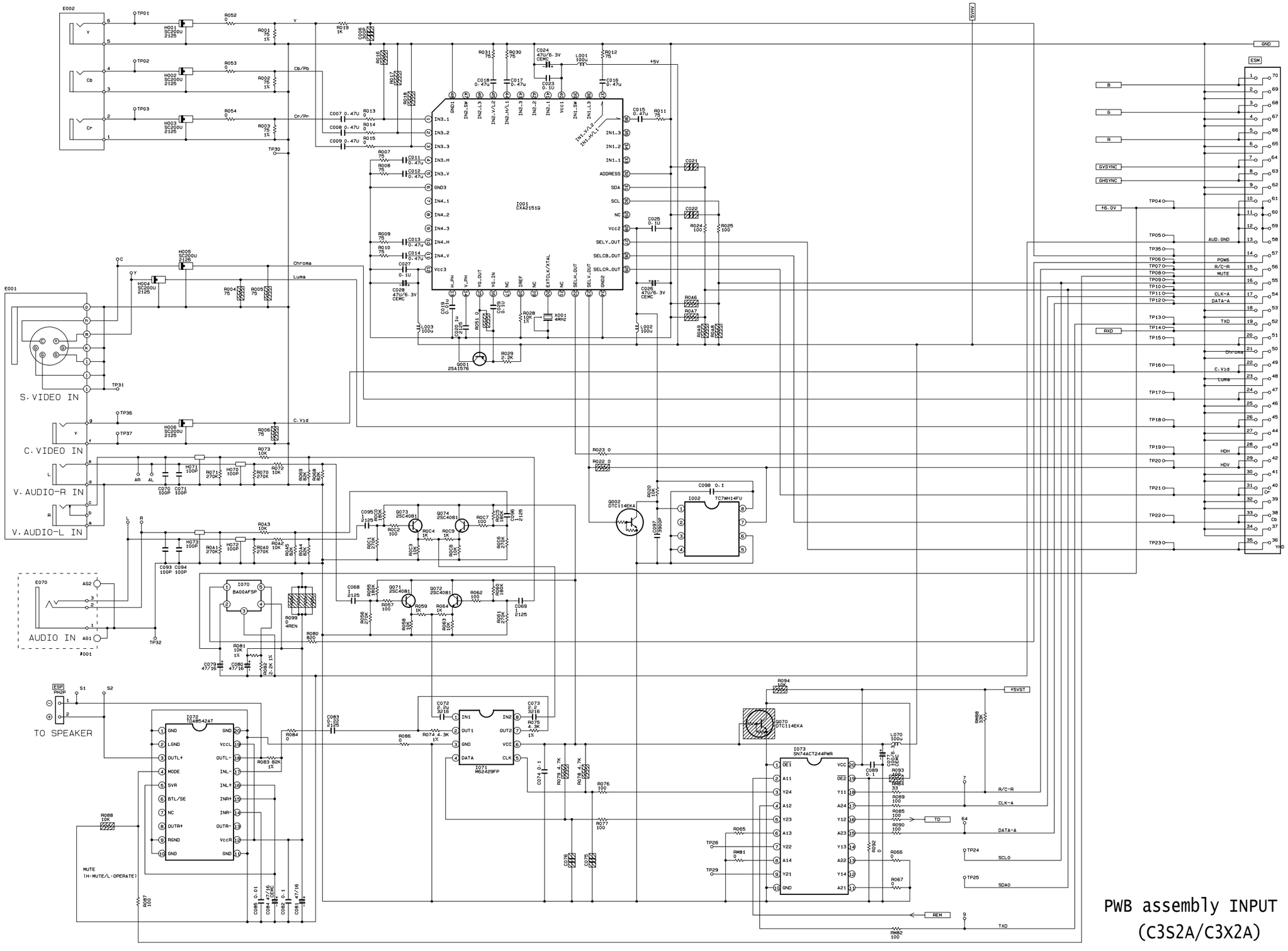

for XGA PANEL
for SVGA PANEL
for XGA PANEL
for SVGA PANEL
PWB assembly DRIVE 7 (C3S2A/C3X2A)

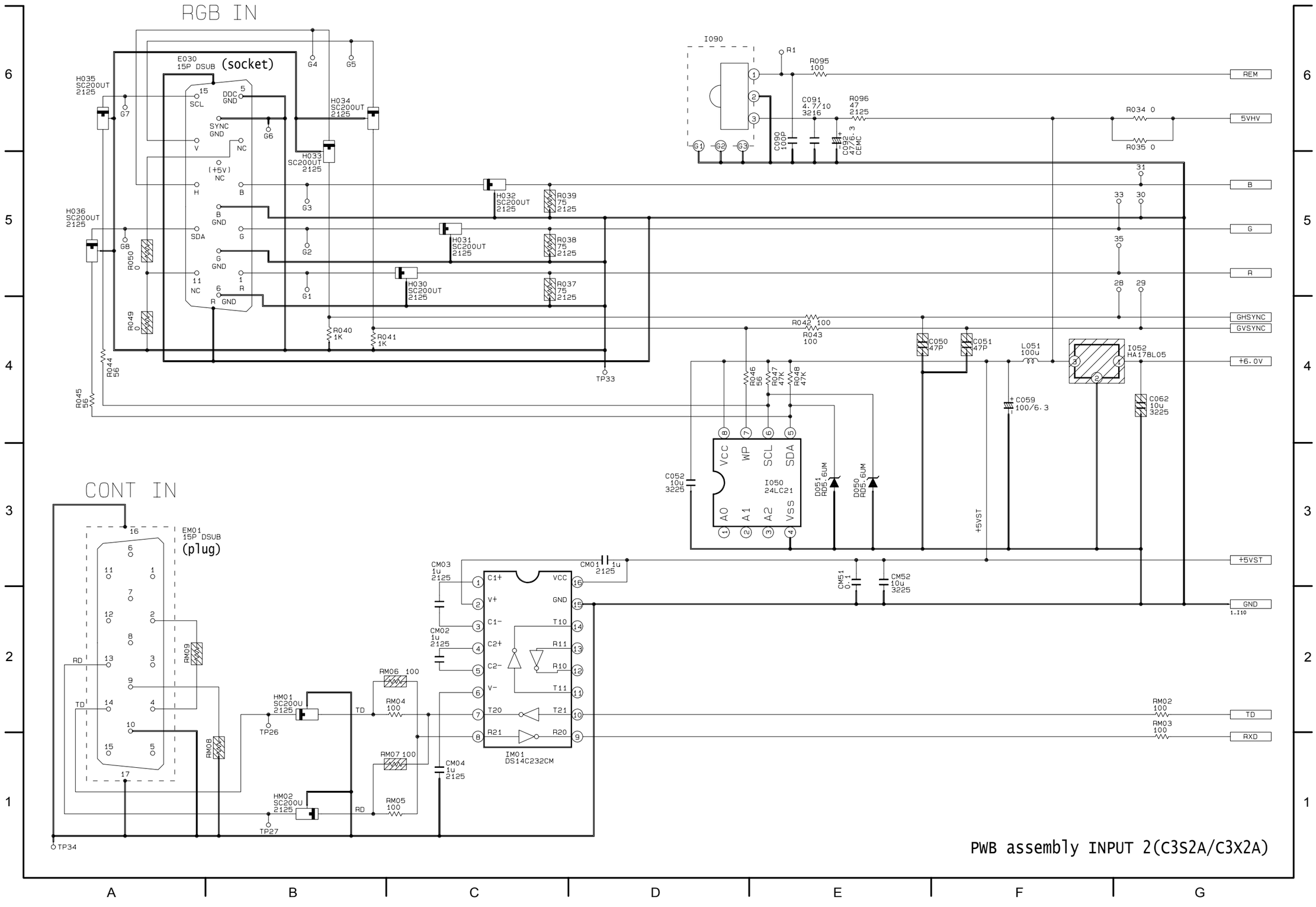

for XGA PANEL
for SVGA PANEL
P701
CPC30FPORSH-LOW
P702
CPC24FPORSH-LOW
L3E01040F0A
1751
L3E0607000A
1701
I752
BA4560F
LS_RESET
LS_CLKB
/PGHOST
YDIR
XDIR
NRSC
GRAY
COMB
PSIG
DYB
/CLYB
MONB
NRGB
ENBB1
ENBB2
ENBB3
ENBB4
DIRXB
CLXB
/CLXB
DXB
BSIG1
BSIG2
BSIG3
BSIG4
BSIG5
BSIG6
DIRYB
DWN
PCG
VST
VCK
ENB
HCK2B
HCK1B
HSTB
CLR
RGT
BUS2
BUS1
BUS4
+3.3VCL
+15.5V
GND1
PWB assembly DRIVE 8 (C3S2A/C3X2A)


I101
CXA3506
I102
BA05FP
+5V
I106
TC7WH14FU
E101
70P_B-B
B-PORT
A-PORT
PWB assembly DRIVE 9 (C3S2A/C3X2A)



PWB assembly DRIVE 10 (C3S2A/C3X2A)

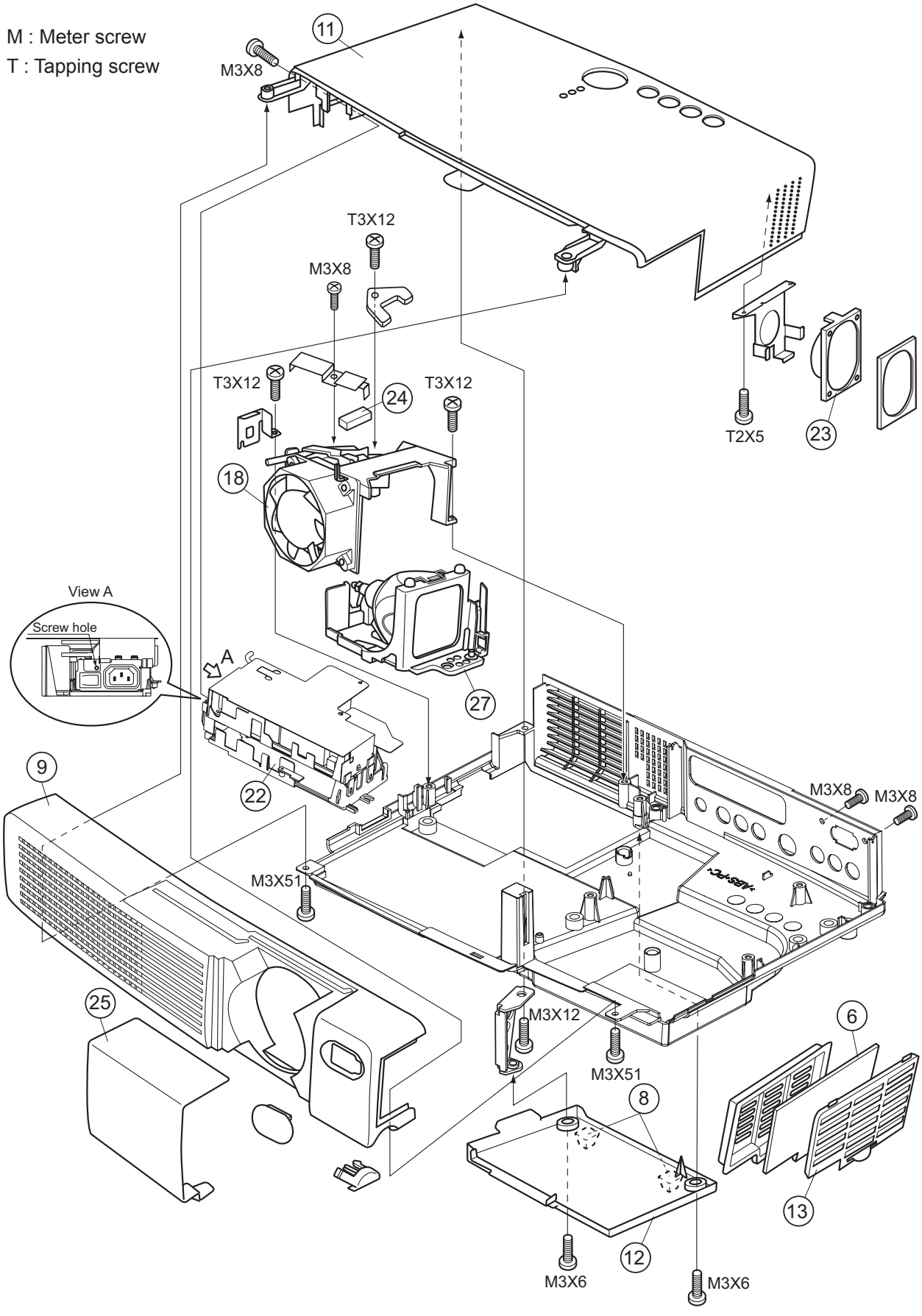

S. VIDEO IN
C. VIDEO IN
V. AUDIO-R IN
V. AUDIO-L IN
AUDIO IN
TO SPEAKER
I001 CXA2151Q
I002 TC7WH14FU
I070 BA00AFSP
I071 M62429FP
I072 TDA8542AT
I073 SN74ACT244PWR
Q001 2SA1576
Q002 DTC114EKA
Q070 DTC114EKA
Q071 2SC4081
Q072 2SC4081
Q073 2SC4081
Q074 2SC4081
X001 4MHz
MUTE (H:MUTE/L:OPERATE)
PWB assembly INPUT 1
(C3S2A/C3X2A)



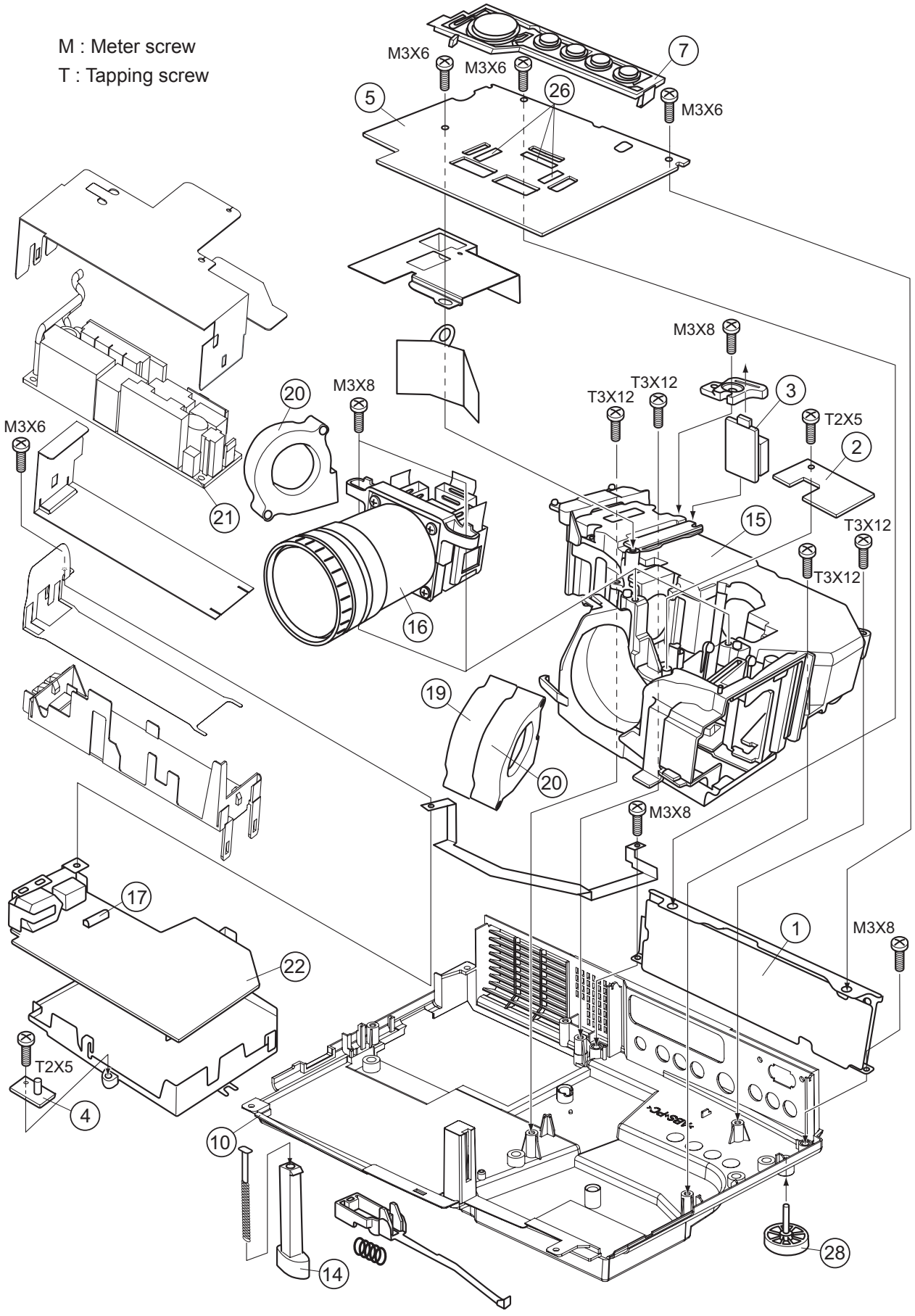
PWB assembly INPUT 2(C3S2A/C3X2A)

11. Disassembly Diagram

M : Meter screw
T : Tapping screw



M : Meter screw
T : Tapping screw



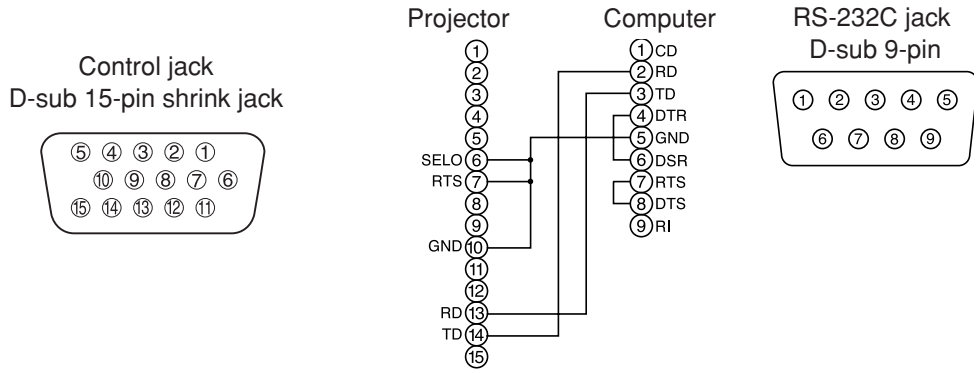
THE UPDATED PARTS LIST

FOR THIS MODEL IS

AVAILABLE ON ESTA

13. RS-232C communication

(1) Turn off the projector and computer power supplies and connect with the RS-232C cable.
(2) Turn on the computer power supply and after the computer has started up, turn on the projector power supply.



Communications setting

19200bps, 8N1

1 Protocol

Consist of header (7 bytes) + command data (6 bytes).

2 Header

BE + EF + 03 + 06 + 00 + CRC_low + CRC_high
CRC_low : Lower byte of CRC flag for command data.
CRC_high : Upper byte of CRC flag for command data.

3 Command data

Command data chart

byte_0	byte_1	byte_2	byte_3	byte_4	byte_5
Action		Type		Setting code	
low	high	low	high	low	high

Action (byte_0 - 1)

Action	Classification	Content
1	SET	Change setting to desired value.
2	GET	Read projector internal setup value.
4	INCREMENT	Increment setup value by 1.
5	DECREMENT	Decrement setup value by 1.
6	EXECUTE	Run a command.

Requesting projector status (Get command)

(1) Send the request code Header + Command data (‘02H’+‘00H’+ type (2 bytes) +‘00H’+‘00H’) from the computer to the projector.
(2) The projector returns the response code ‘1DH’+ data (2 bytes) to the computer.

Changing the projector settings (Set command)

(1) Send the setting code Header + Command data (‘01H’+‘00H’+ type (2 bytes) + setting code (2 bytes)) from the computer to the projector.
(2) The projector changes the setting based on the above setting code.
(3) The projector returns the response code ‘06H’ to the computer.

Using the projector default settings (Reset Command)

(1) The computer sends the default setting code Header + Command data (‘06H’+‘00H’+ type (2 bytes) +‘00H’+‘00H’) to the projector.
(2) The projector changes the specified setting to the default value.
(3) The projector returns the response code ‘06H’ to the computer.

Increasing the projector setting value (Increment command)

(1) The computer sends the increment code Header + Command data (‘04H’+‘00H’+ type (2 bytes) +‘00H’+‘00H’) to the projector.
(2) The projector in creases the setting value on the above setting code.
(3) The projector returns the response code ‘06H’ to the computer.

Decreasing the projector setting value (Decrement command)

(1) The computer sends the decrement code Header + Command data (‘05H’+‘00H’+ type (2 bytes) +‘00H’ + ‘00H’) to the projector.
(2) The projector decreases the setting value on the above setting code.
(3) The projector returns the response code ‘06H’ to the computer.

When a command sent by the projector cannot be understood by the computer

When the command sent by the projector cannot be understood, the error command ‘15H’ is returned by the computer. Some times, the projector ignores RS-232C commands during other works. If the error command ‘15H’ is returned, please send the same command again.

When data sent by the projector cannot be practice

When the command sent by the projector cannot be practiced, the the error code ‘1cH’ +‘xxxxH’ is returned.
When the data length is greater than indicated by the data length code, the projector will ignore the excess data code.
Conversely, when the data length is shorter than indicated by the data length code, an error code will be returned to the projector.

NOTE • Operation cannot be guaranteed when the projector receives an undefined command or data.
• Provide an interval of at least 40ms between the response code and any other code.
• The projector outputs test data when the power supply is switched ON, and when the lamp is lit. Ignore this data.
• Commands are not accepted during warm-up.

Command data chart

Names	Operation type		Header	CRC	Command data		
					Action	Type	Setting code
Blank Color	Set	Blue	BE EF 03 06 00	CB D3	01 00	00 30	03 00
		White	BE EF 03 06 00	6B D0	01 00	00 30	05 00
		Black	BE EF 03 06 00	9B D0	01 00	00 30	06 00
	Get		BE EF 03 06 00	08 D3	02 00	00 30	00 00
Mirror	Set	Normal	BE EF 03 06 00	C7 D2	01 00	01 30	00 00
		H Inverse	BE EF 03 06 00	57 D3	01 00	01 30	01 00
		V Inverse	BE EF 03 06 00	A7 D3	01 00	01 30	02 00
		H&V Inverse	BE EF 03 06 00	37 D2	01 00	01 30	03 00
	Get		BE EF 03 06 00	F4 D2	02 00	01 30	00 00
Freeze	Set	Normal	BE EF 03 06 00	83 D2	01 00	02 30	00 00
		Freeze	BE EF 03 06 00	13 D3	01 00	02 30	01 00
	Get		BE EF 03 06 00	B0 D2	02 00	02 30	00 00
Startup	Set	Turn on	BE EF 03 06 00	0B D2	01 00	04 30	00 00
		Turn off	BE EF 03 06 00	9B D3	01 00	04 30	01 00
	Get		BE EF 03 06 00	38 D2	02 00	04 30	00 00
Language	Set	English	BE EF 03 06 00	F7 D3	01 00	05 30	00 00
		Français	BE EF 03 06 00	67 D2	01 00	05 30	01 00
		Deutsch	BE EF 03 06 00	97 D2	01 00	05 30	02 00
		Español	BE EF 03 06 00	07 D3	01 00	05 30	03 00
		Italiano	BE EF 03 06 00	37 D1	01 00	05 30	04 00
		Norsk	BE EF 03 06 00	A7 D0	01 00	05 30	05 00
		Nederlands	BE EF 03 06 00	57 D0	01 00	05 30	06 00
		Português	BE EF 03 06 00	C7 D1	01 00	05 30	07 00
		日本語	BE EF 03 06 00	37 D4	01 00	05 30	08 00
		中文	BE EF 03 06 00	A7 D5	01 00	05 30	09 00
		한글	BE EF 03 06 00	57 D5	01 00	05 30	0A 00
	Get		BE EF 03 06 00	C4 D3	02 00	05 30	00 00
Magnify	Get		BE EF 03 06 00	7C D2	02 00	07 30	00 00
	Increment		BE EF 03 06 00	1A D2	04 00	07 30	00 00
	Decrement		BE EF 03 06 00	CB D3	05 00	07 30	00 00
Auto off	Get		BE EF 03 06 00	08 86	02 00	10 31	00 00
	Increment		BE EF 03 06 00	6E 86	04 00	10 31	00 00
	Decrement		BE EF 03 06 00	BF 87	05 00	10 31	00 00
Brightness Reset	Execute		BE EF 03 06 00	58 D3	06 00	00 70	00 00
Contrast Reset	Execute		BE EF 03 06 00	A4 D2	06 00	01 70	00 00
V.Position Reset	Execute		BE EF 03 06 00	E0 D2	06 00	02 70	00 00

Command data chart

Names	Operation type		Header	CRC	Command data		
					Action	Type	Setting code
H.Position Reset	Execute		BE EF 03 06 00	IC D3	06 00	03 70	00 00
H.Size Reset	Execute		BE EF 03 06 00	68 D2	06 00	04 70	00 00
Color Balance R Reset	Execute		BE EF 03 06 00	94 D3	06 00	05 70	00 00
Color Balance B Reset	Execute		BE EF 03 06 00	D0 D3	06 00	06 70	00 00
Sharpness Reset	Execute		BE EF 03 06 00	C4 D0	06 00	09 70	00 00
Color Reset	Execute		BE EF 03 06 00	80 D0	06 00	0A 70	00 00
Tint Reset	Execute		BE EF 03 06 00	7C D1	06 00	0B 70	00 00
Keystone_V Reset	Execute		BE EF 03 06 00	08 D0	06 00	0C 70	00 00
Auto Adjust	Execute		BE EF 03 06 00	91 D0	06 00	0A 20	00 00
Lamp Time Reset	Execute		BE EF 03 06 00	58 DC	06 00	30 70	00 00
Filter Time Reset	Execute		BE EF 03 06 00	98 C6	06 00	40 70	00 00
Blank on/off	Set	off	BE EF 03 06 00	FB D8	01 00	20 30	00 00
		on	BE EF 03 06 00	6B D9	01 00	20 30	01 00
	Get		BE EF 03 06 00	C8 D8	02 00	20 30	00 00
Error Status	Get		BE EF 03 06 00	D9 D8	02 00	20 60	00 00
			(Example of Return) 00 00 (Normal) 01 00 (Cover-error) 02 00 (Fan-error) 03 00 (Lamp-error) 04 00 (Temp-error) 05 00 (Air flow-error) 06 00 (Lamp-Time-over) 07 00 (Cool-error) 08 00 (Filter-Error)				
Power	Set	OFF	BE EF 03 06 00	2A D3	01 00	00 60	00 00
		ON	BE EF 03 06 00	BA D2	01 00	00 60	01 00
	Get		BE EF 03 06 00	19 D3	02 00	00 60	00 00
Input Source	Set	RGB	BE EF 03 06 00	FE D2	01 00	00 20	00 00
		Video	BE EF 03 06 00	6E D3	01 00	00 20	01 00
		SVideo	BE EF 03 06 00	9E D3	01 00	00 20	02 00
		Component	BE EF 03 06 00	AE D1	01 00	00 20	05 00
	Get		BE EF 03 06 00	CD D2	02 00	00 20	00 00
Volume	Get		BE EF 03 06 00	31 D3	02 00	01 20	00 00
	Increment		BE EF 03 06 00	57 D3	04 00	01 20	00 00
	Decrement		BE EF 03 06 00	86 D2	05 00	01 20	00 00
Mute	Set	Normal	BE EF 03 06 00	46 D3	01 00	02 20	00 00
		Mute	BE EF 03 06 00	D6 D2	01 00	02 20	01 00
	Get		BE EF 03 06 00	75 D3	02 00	02 20	00 00
Brightness	Get		BE EF 03 06 00	89 D2	02 00	03 20	00 00
	Increment		BE EF 03 06 00	EF D2	04 00	03 20	00 00
	Decrement		BE EF 03 06 00	3E D3	05 00	03 20	00 00

Command data chart

Names	Operation type		Header	CRC	Command data		
					Action	Type	Setting code
Contrast	Get		BE EF 03 06 00	FD D3	02 00	04 20	00 00
	Increment		BE EF 03 06 00	9B D3	04 00	04 20	00 00
	Decrement		BE EF 03 06 00	4A D2	05 00	04 20	00 00
Color Balance R	Get		BE EF 03 06 00	01 D2	02 00	05 20	00 00
	Increment		BE EF 03 06 00	67 D2	04 00	05 20	00 00
	Decrement		BE EF 03 06 00	B6 D3	05 00	05 20	00 00
Color Balance B	Get		BE EF 03 06 00	45 D2	02 00	06 20	00 00
	Increment		BE EF 03 06 00	23 D2	04 00	06 20	00 00
	Decrement		BE EF 03 06 00	F2 D3	05 00	06 20	00 00
Keystone_V	Get		BE EF 03 06 00	B9 D3	02 00	07 20	00 00
	Increment		BE EF 03 06 00	DF D3	04 00	07 20	00 00
	Decrement		BE EF 03 06 00	0E D2	05 00	07 20	00 00
Aspect	Set	4:3	BE EF 03 06 00	9E D0	01 00	08 20	00 00
		16:9	BE EF 03 06 00	0E D1	01 00	08 20	01 00
		Small	BE EF 03 06 00	FE D1	01 00	08 20	02 00
	Get		BE EF 03 06 00	AD D0	02 00	08 20	00 00
Picture Position at 16 : 9 or Small	Set	Default	BE EF 03 06 00	62 D1	01 00	09 20	00 00
		Bottom	BE EF 03 06 00	F2 D0	01 00	09 20	01 00
		Top	BE EF 03 06 00	02 D0	01 00	09 20	02 00
	Get		BE EF 03 06 00	51 D1	02 00	09 20	00 00
V.Position	Get		BE EF 03 06 00	0D 83	02 00	00 21	00 00
	Increment		BE EF 03 06 00	6B 83	04 00	00 21	00 00
	Decrement		BE EF 03 06 00	BA 82	05 00	00 21	00 00
H.Position	Get		BE EF 03 06 00	F1 82	02 00	01 21	00 00
	Increment		BE EF 03 06 00	97 82	04 00	01 21	00 00
	Decrement		BE EF 03 06 00	46 83	05 00	01 21	00 00
H.Size	Get		BE EF 03 06 00	B5 82	02 00	02 21	00 00
	Increment		BE EF 03 06 00	D3 82	04 00	02 21	00 00
	Decrement		BE EF 03 06 00	02 83	05 00	02 21	00 00
H.Phase	Get		BE EF 03 06 00	49 83	02 00	03 21	00 00
	Increment		BE EF 03 06 00	2F 83	04 00	03 21	00 00
	Decrement		BE EF 03 06 00	FE 82	05 00	03 21	00 00
Sharpness	Get		BE EF 03 06 00	F1 72	02 00	01 22	00 00
	Increment		BE EF 03 06 00	97 72	04 00	01 22	00 00
	Decrement		BE EF 03 06 00	46 73	05 00	01 22	00 00
Color	Get		BE EF 03 06 00	B5 72	02 00	02 22	00 00
	Increment		BE EF 03 06 00	D3 72	04 00	02 22	00 00
	Decrement		BE EF 03 06 00	02 73	05 00	02 22	00 00

Command data chart

Names	Operation type		Header	CRC	Command data		
					Action	Type	Setting code
Tint	Get		BE EF 03 06 00	49 73	02 00	03 22	00 00
	Increment		BE EF 03 06 00	2F 73	04 00	03 22	00 00
	Decrement		BE EF 03 06 00	FE 72	05 00	03 22	00 00
Video Format	Set	Auto	BE EF 03 06 00	9E 75	01 00	00 22	0A 00
		NTSC	BE EF 03 06 00	FE 71	01 00	00 22	04 00
		PAL	BE EF 03 06 00	6E 70	01 00	00 22	05 00
		SECAM	BE EF 03 06 00	6E 75	01 00	00 22	09 00
		NTSC 4.43	BE EF 03 06 00	5E 72	01 00	00 22	02 00
		M-PAL	BE EF 03 06 00	FE 74	01 00	00 22	08 00
		N-PAL	BE EF 03 06 00	0E 71	01 00	00 22	07 00
	Get		BE EF 03 06 00	0D 73	02 00	00 22	00 00
HDTV	Set	1080i	BE EF 03 06 00	F2 73	01 00	05 22	00 00
		1035i	BE EF 03 06 00	62 72	01 00	05 22	01 00
	Get		BE EF 03 06 00	C1 73	02 00	05 22	00 00
Sync on G	Set	off	BE EF 03 06 00	CB D0	01 00	08 30	01 00
		on	BE EF 03 06 00	5B D1	01 00	08 30	00 00
	Get		BE EF 03 06 00	68 D1	02 00	08 30	00 00
WHISPER	Set	NORMAL	BE EF 03 06 00	3B 23	01 00	00 33	00 00
		WHISPER	BE EF 03 06 00	AB 22	01 00	00 33	01 00
	Get		BE EF 03 06 00	08 23	02 00	00 33	00 00
GAMMA	Set	NORMAL	BE EF 03 06 00	C7 F0	01 00	A1 30	00 00
		CINEMA	BE EF 03 06 00	57 F1	01 00	A1 30	01 00
		DYNAMIC	BE EF 03 06 00	A7 F1	01 00	A1 30	02 00
	Get		BE EF 03 06 00	F4 F0	02 00	A1 30	00 00
Lamp Time	Get		BE EF 03 06 00	C2 FF	02 00	90 10	00 00
Filter Time	Get		BE EF 03 06 00	C2 F0	02 00	A0 10	00 00

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